Telephony.

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WHY TELEPHONE MEN SHOULD COME TO THE CHICAGO CONVENTION

Industrial and economic leaders who have the business situation on their minds and hearts are saying a great deal these days on the subject of "business stabilization" and the need for practical plans to remove the peaks and valleys in the record of our national life.

Probably if the peaks of prosperity could always be retained there would be no complaint, and no business prescription would be necessary. However, experience has shown that there are periodical dips of depression as well as peaks of good times, so the economic experts argue that it is preferable to smooth out the curve of progress and maintain a more uniform level of accomplishment.

* * * *

Trade associations are doing good work in this direction of business stabilization. In times of emergency human beings feel the urge to get together and cooperate for their common good. In times of great prosperity this feeling of dependence is missing—everybody feels individually brave and care-free, and is out to have as good a time as possible.

Frederick M. Feiker, the director of the bureau of foreign and domestic commerce, recently said:

"The trade associations of the country are the shock troops in the struggle which confronts us for the stabilization of our economic structure through long-range planning. Economic planning, as we hear it discussed nowadays, is not a new thing. It has been done and is being done by individuals and trades every day.

"We have been planning and putting plans into operation in this country for years. Economic planning has proved its place not only in social objectives and attainments, but in its immediate commercial values to American business and industry. In the continuance and development of this work lies the great value of the trade association in the future."

* * * *

Business conventions have been well attended since the depression began two years ago, and there has been manifested a more earnest interest in their endeavors to help their respective industries on the part of those who attended. They have felt the need of group cooperation more keenly.

* * * *

Next month the annual convention of the United States Independent Telephone Association will be held in Chicago, and telephone men all over the country are looking forward to the event as of unusual importance. This annual gathering attracts all branches of the telephone business who regard it as an inventory time for the industry to record the history of the past year and make constructive plans for the future.

It is the belief of all best-informed observers that the utility companies have led conspicuously in stabilizing business during the depression, and that the telephone industry has been in the front rank as a factor in meeting the adverse conditions.

Through both local and toll service it has enabled many lines of business to carry on economically. The telephone has saved time and money to countless concerns that found it necessary to cut expenses in order to continue operations during the slump.

For that reason alone the national telephone convention this year will have a wide general interest, for whatever the industry does in the way of planning for the coming year will have an important effect on the entire business world.

* * * *

It is no exaggeration to say that because of their stability, their great volume of assets and their position as a large employer of labor, the public utilities are expected to furnish helpful leadership at this time. The telephone business ranks highest among the utilities in these various respects, and can do much to increase the business confidence so much needed at this time.

All telephone companies should arrange to have their organizations well represented at the Chicago meeting, for attendance at the sessions will enable both executives and employes to do a better job during the coming months. No telephone man can afford to miss attending the Chicago convention October 20-23.

It Can Be Done.

Resourceful men can make even hard times pay dividends. Some time ago Secretary J. C. Crowley, of the Minnesota Telephone Association, told member companies this was a good year to put their prop-

erties in shape, as labor is plentiful and the price of construction materials is much lower than usual. Rehabilitation work now, he pointed out, would reduce maintenance costs, put the plants in shape to care for additional business and win the good will of subscribers by improving the service.

He also suggested that companies give some delinquent subscribers the opportunity to dispose of their indebtedness by contributing their labor under the supervision of company foremen. One company made this interesting report:

"We have been very busy the last six weeks following your advice, giving a bunch of our farm subscribers a chance to work out their past due rentals—and you should have seen them come to work. They not only worked out their past due accounts but it was almost impossible to get them to quit when they were paid up, as they wanted to work out from three to six months in advance.

"Thanks to your tip, we have rebuilt 10 miles of line that was a wreck, cutting off all poles and re-setting them, and really doing a good rebuilding job for no other cost to us in money paid out than the cost of gasoline used in transporting men to and from work—and, besides, we have a lot of old accounts past due cleaned up."

Another company reported: "Employed some of our delinquent subscribers on a brush and tree-trimming job covering a distance of 10 miles. Results—delinquent accounts paid, tree interference removed, maintenance costs reduced and the service improved all around."

As Secretary Crowley says: "It can be done."

* * * *

A TELEPHONY subscriber writes: "I read in the press dispatches the following under a New York date line: 'Talk is cheap but motoring is more popular, according to the New York Automobile Club which says that on December 31, 1930, there were 23,042,840 automobiles in the United States compared with 20,098,059 telephones.'"

Then he adds the pertinent comment, "Maybe that is what is the matter with the country today." Not a bad deduction.

COMING CONVENTIONS.

United States Independent Telephone Association, Hotel Stevens, Chicago, October 20, 21, 22 and 23.

Independent Pioneer Telephone Association of United States, Hotel Stevens, Chicago, Thursday, October 22.

Missouri Telephone Association, Hotel President, Kansas City, November 11 and 12.

Illinois Telephone Association, Pere Marquette Hotel, Peoria, November 18 and 19.

Telephone Circuit Power Measurements

Detailed Explanation of the Use of the Decibel as a Unit of Measuring Power Loss or Gain in Transmission Circuits—Common Sources of Error in Measurements of Power Loss—Solution of a Few Electrical Communication Problems

By Arthur L. Albert,

Assistant Professor of Electrical Engineering, Oregon State College, Corvallis, Ore.

Within the last few years much progress has been made in determining the quantitative performance of telephone circuits and apparatus. Today all of the larger telephone companies have in their organizations engineers whose duty it is to keep the talking circuits up to a high degree of performance. This is done by properly designing the circuits before they are constructed, and by routine transmission tests made after they are in service to insure that maintenance conditions are good. The need of a unit to express the transmission loss when tests are made is evident.

Some years ago the mile of standard cable (m.s.c.) was extensively used to express the loss of a circuit or piece of equipment. This unit served its purpose well, but as transmission knowledge extended the mile of standard cable was no longer adequate as a measure of transmission perfection. This led to the adoption of the transmission unit (T.U.) for measuring the loss (or gain in the case of amplifiers) in telephone circuits.

Although the term transmission unit well expressed the equivalent of a circuit, several years after its adoption the name of this term was changed to *decibel*, abbreviated db. The last part of this word pays homage to Alexander Graham Bell, the inventor of the telephone. The first part signifies one-tenth. The term decibel seems destined to achieve world-wide adoption.

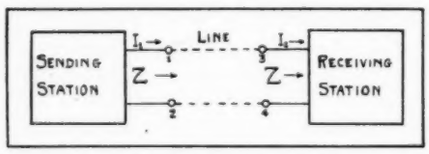


Fig. 1. Diagram to Illustrate Errors Made in Measuring Power Loss in Communication Circuits.

There is scarcely a technical article on communication subjects published today in which the decibel is not employed. It is used in telegraphy, telephony, radio, sound engineering, and in many other fields. The decibel is admirably adapted to measuring the loss or gain in any circuits in which this loss or gain is high, as for instance, communication networks. This article will present a discussion of power measurements in such circuits, and will illustrate the use of the decibel.

Definition of the Decibel.

There are two important criteria of good telephone transmission. First, the received speech waves must be sufficiently strong; and second, they must not be unduly distorted, either by the telephone lines and equipment or by induced currents from extraneous sources. It is with respect to the first that the decibel is here used.

Suppose that the sending station of Fig. 1 impresses W_1 milliwatts of power on the line toward the receiving station, which, due to the line losses, only receives W_2 milliwatts. Under these conditions, the loss would be:

$$\text{Loss in decibels (db)} = 10 \log_{10} \frac{W_1}{W_2} \quad \ldots\ldots 1$$

From this relation it follows that

$$\frac{W_1}{W_2} = 10^{0.1 \times \text{db}} \quad \ldots\ldots 2$$

Thus, when the power sent and the power received are in the ratio of $10^{0.1}$, the loss is one decibel; when they are in the ratio of 10^1 $(=10)$, the loss is ten decibels or one bel. This latter unit is seldom used.

Measurements of Power Loss.

It is usually extremely difficult to measure power directly in communication circuits on account of the small amount of power present in these circuits. The power required to operate a wattmeter used in commercial power circuits is perhaps 10,000 or more times as great as the total power in a telephone circuit during conversation.

Power in communication circuits is, therefore, usually measured indirectly, by measuring the current or voltage in the circuit. These current and voltage measurements are readily made with thermocouple instru-

ments, or with some form of a vacuum-tube voltmeter. Although these measurements can be used to determine the loss in circuits, very often errors are made in doing this.

In order to illustrate these errors, suppose that the current sent from a station and the current received at the distant station are known. These conditions are also illustrated by Fig. 1, in which it is assumed that the impedance measured at the terminals 1 and 2 in the direction of the arrow is the same as the impedance measured at 3 and 4 in the direction of the arrow. That is, the impedance of the receiving station equals the characteristic impedance of the line.

Since power is always equal to I^2R, equation 1 can be written:

$$\text{Loss in db} = 10 \log_{10} \frac{W_1}{W_2} = 10 \log_{10} \frac{I^2_1 R_1}{I^2_2 R_2} \quad \ldots\ldots 3$$

And where $R_1 = R_2$ as in Fig. 1, equation 3 becomes

$$\text{Loss in db} = 20 \log_{10} \frac{I_1}{I_2} \quad \ldots\ldots 4$$

Where R_1 and R_2 are not equal, equation 3 can be written

$$\text{Loss in db} = 20 \log_{10} \frac{I_1}{I_2} + 10 \log_{10} \frac{R^1}{R_2} \quad \ldots. 5$$

Thus, equation 5 shows that if the equivalent effective resistance of the two circuits is not the same, an error equal to $10 \log_{10} \frac{R_1}{R_2}$ will be introduced if equation 4 instead of equation 5 is used.

An investigation will show that an error is also often introduced if voltage ratios are employed. Thus, since power always equals $E I \cos \Theta$, where Θ is the phase angle between E and I,

$$\text{Loss in db} = 10 \log_{10} \frac{W_1}{W_2} = 10 \log_{10} \frac{E_1 I_1 \cos \Theta_1}{E_2 I_2 \cos \Theta_2} = 10 \log_{10} \frac{E^2_1 Z_2 \cos \Theta_1}{E^2_2 Z_1 \cos \Theta_2} \quad .. 6$$

where I_1 is replaced by E_1/Z_1 and I_2 by E_2/Z_2

This equation can also be written:

$$\text{Loss in db} = 20 \log_{10} \frac{E_1}{E_2} + 10 \log_{10} \frac{Z_2}{Z_1} + 10 \log_{10} \frac{\cos \Theta_1}{\cos \Theta_2} \quad \ldots\ldots 7$$

Therefore, if voltage measurements are made without taking into consideration the impedance relations of the two circuits across which E_1 and E_2 are measured, an error equal to $10 \log_{10} \frac{Z_2}{Z_1} + 10 \log_{10} \frac{\cos \Theta_1}{\cos \Theta_2}$ will be introduced.

These equations show that only when the equivalent reactances and equivalent effective resistances of the two circuits are equal, is the loss given by

$$\text{Loss in db} = 20 \log_{10} \frac{E_1}{E_2} \quad \ldots\ldots 8$$

The foregoing factors are seldom brought out in telephone work, because the impedance of most telephone networks is about the same when measured in either direction from a given point in a circuit; that is, most equipment is designed to properly terminate the lines, and these lines all have about the same characteristic impedance. Thus, in most telephone transmission work either equation 4 or 8 can be used and the loss obtained accurately enough for most purposes.

In telephone transmission the engineer is greatly interested in knowing the overall transmission loss in the circuit and apparatus during a typical conversation. Experience has set rather rigid limits for the total losses which can be tolerated. These are usually different for local and toll connections, and vary with the different companies.

Calculations of Power Loss.

To assume a typical case, suppose that a connection consists of 1.5 miles of No. 24 gauge cable having a loss of 2.04 db per mile, central office equipment having a loss of 1.0 db, 300 miles of No. 8 open copper wire line having a loss of 0.031 db per mile, central office equipment having a 1.0 db loss, and 2.0 miles of No. 2.04 db per mile. With this circuit the total loss would be $(1.5 \times 2.04) + 1.0 + (300 \times 0.031) + 1.0 + (2.0 \times 2.04) = 18.44$ db. This figure could then be compared with standards to determine if it were within the prescribed transmission limits.

Although it is seldom computed in actual telephone work, the more theoretical reader may be interested in the power levels involved in such a connection. This depends, of course, upon the speech input power, which varies widely with the speaker, with the distance the transmitter is held from the speaker's lips, and many other factors. It may be assumed that about 500 microwatts is a typical value for the useful power output of a transmitter. With such an output, the power received over the connection previously described would be from equation 2,

$$\frac{500}{W_2} = 10^{0.1 \times 18.44} \text{ or } W_2 = \frac{500}{10^{1.844}} = \frac{500}{69.82} = 7.16 \text{ microwatts.}$$

This would correspond to an efficiency of 7.16/500, or 1.43 per cent.

Losses can readily be computed from the data given in the accompanying table without the use of logarithms.

Decibels.	Per cent— Loss.	Gain.
1	79.4	126
2	63.1	158
3	50.1	200
4	39.8	251
5	31.6	316
6	25.1	398
7	20.0	501
8	15.8	631
9	12.6	794
10	10.0	1,000
20	1.0	10,000
30	0.1	100,000
40	0.01	1,000,000
50	0.001	10,000,000

Table for Obtaining Power Efficiency in Per Cent Knowing Loss or Gain in Decibels.

As an illustration, consider the connection having a loss of 18.44 db. The efficiency of this line would be approximately 10 db + 8 db, and the corresponding efficiencies found in the table would then be 10.0 per cent × 15.8 per cent = 1.58 per cent. Thus, the power received would be $500 \times 0.0158 = 7.9$ microwatts, which agrees approximately with the logarithmic calculations made by equation 2. This method is very easily applied, and is extensively used where it is not desired to consult logarithms.

As a further aid in the rapid solution of

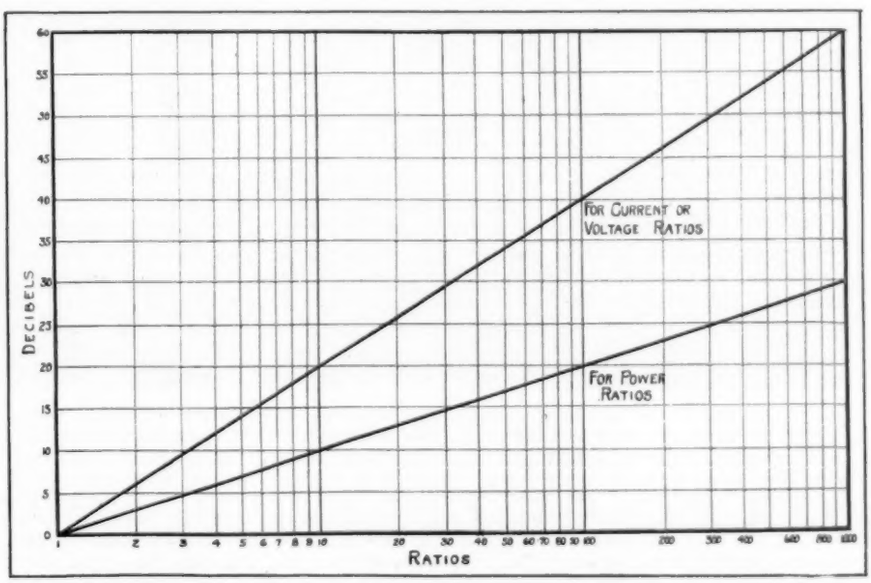


Fig. 2. Curves for Gain or Loss in Decibels from Current Voltage or Power Ratios.

communication problems, the curves in Fig. 2 will be found very convenient. Suppose that in making measurements on a circuit having the proper impedances as previously explained, it is found that the current is 5 milliamperes at the sending end of a network and 0.8 milliamperes at the receiving end. The ratio would be $5/0.08 = 62.5$, and the db loss from equation 4 would be

$$db = 20 \log_{10} \frac{5}{0.08} = 20 \times 1.79588 = 35.9 \text{ db.}$$

If the current ratio curve in Fig. 2 is examined it will be found that a current ratio of 62.5 also gives about 35.9 db loss. The advantage of having such a curve available when making numerous measurements is apparent. Although the curve here shown is reduced in size, it can be readily reproduced to a much larger scale on a sheet of semi-logarithmic paper.

The decibel is also used to express the power level in a circuit, both in telephone and in radio work. If a reference level is defined, then any amount of power is plus or minus a certain number of decibels above or below this reference level.

The selection of a reference or zero level, as it is often called, has presented many difficulties, and apparently is not standardized in the various communication branches. In the telephone industry, 0.006 watt or 6 milliwatts is sometimes used as the reference or zero power level. This value is related to the power output of a certain vacuum tube extensively used in telephone repeaters. On this basis, if a circuit were delivering 60 milliwatts it was operating at "plus 10 db level." Similarly, if the power level were "minus 10 db," the power at that point would be 0.6 milliwatt.

This reference or zero level of 0.006 watt is not as often used in telephone circles at present as in the past. Instead, a definite point in the circuit under consideration is selected, and the power level in decibels at other points in the circuit is then expressed as so many decibels above or below this chosen reference point. Nevertheless, one of the leading manufacturers of communication apparatus builds power level indicators calibrated with 0.006 watt as the zero or reference level.

Such an indicator is essentially a voltmeter for operation across a circuit of definite impedance. When used in circuits having an impedance other than the impedance for which it is designed, a correction must be applied.

In radio broadcasting work a level of 0.01 watt or 10 milliwatts, was regarded as zero level in past year, and was so defined in the 1928 National Electric Manufacturers' Association's radio standards. A preliminary examination of the 1931 standards of the Institute of Radio Engineers, New York City, has failed to disclose a standard numerical reference or zero level.

Annual Canadian Convention Held

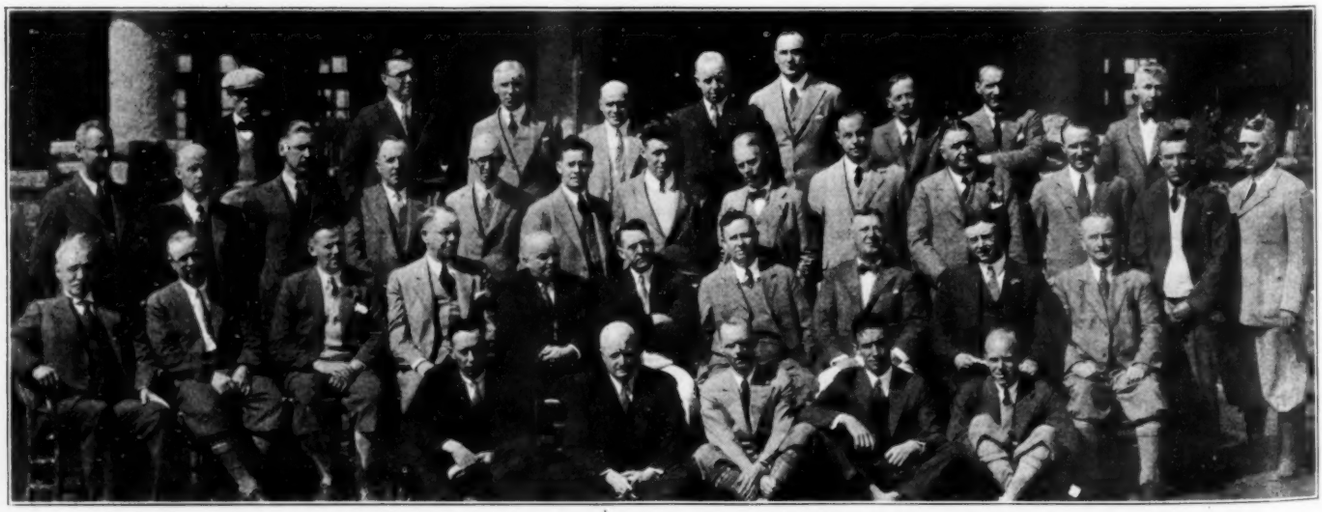
Prominent Telephone Men Present at the 11th Annual Convention of the Telephone Association of Canada Recently Held—Division Discussions of Long Distance Traffic Handling, Advertising, and Other Matters—Officers Elected

The Telephone Association of Canada held its 11th annual convention at Minaki, Ontario, from August 28 to September 1. Many important matters in the commercial, traffic, and general executive fields were widely discussed and considerable real information was exchanged in the various sessions.

The presiding officers at the convention were: President E. Palm, vice-president and comptroller, Bell Telephone Co. of Canada, Montreal; Vice-President J. F. Bryant, minister of telephones, Regina, Sask.; Secretary-Treasurer Alex. M. Mitchell, auditor, Alberta Government Telephones, Edmonton.

After the opening of the convention Friday morning, August 28, by President Palm, the executive, commercial, and traffic groups each began discussion of those subjects of particular interest to themselves.

Revenue possibilities from the dissemination by telephone employes of information regarding road conditions, grain prices and the like were discussed. Also pay-station development and other sources of additional revenue were talked over. Collection routine, advisability of extending extra credit in times of depression, and other policies in the contacts with customers, as



Those in Attendance at Annual Convention of Telephone Association of Canada, Left to Right: First Row, A. B. Godfrey, Okanagan, B. C.; N. G. Fitchpatrick, Vancouver, B. C.; P. Winstanley, Winnipeg, Man.; F. Johnson and A. G. Anderson, Montreal, Que. Second Row, F. Dagger, Toronto, Ont.; F. E. Hiseler, Halifax, N. S.; P. A. McFarlane, Montreal, Que.; W. H. Hayes, Halifax, N. S.; O. J. Fraser, St. John, N. B.; Dr. Harvey Fletcher, New York, N. Y.; F. B. MacKinnon, Chicago, Ill.; E. Palm, Montreal, Que.; J. F. Bryant, Regina, Sask.; V. W. Smith, Edmonton, Alta. Third Row, K. S. Forbes, New York, N. Y.; S. B. Ebbett, St. John, N. B.; F. Purdy, Regina, Sask.; W. H. Warren, Regina, Sask.; A. M. MacKay, Halifax, N. S.; H. Coddington, P. Miller and J. E. Lowry, Winnipeg, Man.; E. F. Helliwell, Vancouver, B. C.; R. Burrows, Montreal, Que.; J. Hamilton, Vancouver, B. C.; J. D. Baker, Edmonton, Alta.; M. K. Pike, Montreal, Que. Fourth Row, J. W. Delaney, Winnipeg, Man.; A. M. Mitchell, Edmonton, Alta.; H. A. Reed, Winnipeg, Man.; C. W. Doody, Regina, Sask.; J. McNeice and C. B. Diplock, Vancouver, B. C.; W. Froste and W. B. Ferguson, Edmonton, Alta., and J. H. Leeson, Regina, Sask. Photograph by Canadian National Railway.

well as advertising and sales plans discussions kept the commercial men busy.

The traffic men gave most of their attention to the development of toll practices and facilities. Toll center plans, traffic directory service as applied to the development of CLR service, international traffic, and the use of peg counts were some of the subjects.

The executive group in their meetings discussed a national advertising plan and considered various topics relating to general conditions.

The official guests of the convention were K. S. Forbes, general traffic supervisor, American Telephone & Telegraph Co.; Harvey Fletcher, B. Sc., Ph. D., director of acoustical research, Bell Telephone Laboratories; D. E. Galloway, assistant vice-president, Canadian National Railways; J. McMillan, general traffic manager of telegraphs, Canadian Pacific Railway; Francis Dagger, supervisor of telephone systems, Ontario Railway and Municipal Board, and F. B. MacKinnon, president, United States Independent Telephone Association, Chicago, Ill.

Golf games added to the pleasant atmosphere of the convention, and the week-end was topped off Sunday evening with a most interesting lecture by Dr. Fletcher on "Speech and Hearing as Related to Electrical Communication." This was profusely illustrated by lantern slides and by a demonstration of talking pictures by H. M. Varco through courtesy of the Northern Electric Co., Montreal.

The officers for 1932 are: President, J. D. Baker, deputy minister and general manager, Alberta Government Telephones, Edmonton; vice-president, W. J. Major, minister of telephones, Winnipeg; secretary-treasurer, Alex M. Mitchel, auditor, Alberta Government Telephones, Edmonton.

Prominent figures present at the meeting were the ministers of telephones from Saskatchewan and Alberta and all members of the executive council representing seven general managers of the major Canadian companies.

Five District Meetings Scheduled by Iowa Association.

The Iowa Independent Telephone Association has announced dates on which it will hold five district meetings next week. The first meeting wil be held on September 28 at West Liberty where the West Liberty Telephone Co., of which H. B. Melick, president of the Iowa association, is manager, will be the host.

On the following day, September 29, there will be a meeting at Mt. Pleasant where the Mt. Pleasant Telephone Co. will be the host. C. W. Quillen is manager of the company. On Wednesday, September 30, the meeting at Chariton will be in charge of the Lucas County Telephone Co., of which A. J. Adams is manager.

There will be a meeting at Creston on October 1, the host being the Creston Mutual Telephone Co., of which George E. Atkinson is manager. The last district meeting of this particular series is scheduled for October 2 at Story City where the Iowa-Continental Telephone Co., with F. A. Boardman in charge, will be host.

The meeting for the operators at all of these meetings will be in charge of Miss Anne Barnes, of Des Moines, traveling chief operator of the association and will be conducted under the auspices of the engineering extension department of the Iowa State College.

At the men's meeting there will be a demonstration of inductive interference of electric lines on telephone lines by the Northwestern Bell Telephone Co. This demonstration is expected to prove highly educational as well as interesting. There will be a round table conference at which special problems will be discussed.

Western Pennsylvania Meeting Instructive and Entertaining.

The meeting of the western district of the Pennsylvania State Telephone & Traffic Association, held at Conneaut Lake Park on September 4 and 5, was most gratifying in its results. While the attendance was not all that could be desired the meetings were both interesting and instructive.

More than 40 operators were present and, under the capable leadership of Mrs. Mabel P. Sellvin of Jamestown, N. Y., they derived much benefit from their sessions. Golf matches were played Friday morning and on Friday evening dancing was enjoyed by some, while others engaged in bridge.

A number took advantage of the holiday season and remained over the week-end, while others motored to Cambridge Springs for Sunday and Labor Day. The manufacturers were well represented and were busy renewing old friendships and making new ones.

Wisconsin Telephone Companies to Hold Conference Next Week.

On September 28 and 29 there will be a conference of Wisconsin telephone companies at Lancaster. The first meeting, according to notices sent out by W. L. Smith, secretary of the Wisconsin State Telephone Association, will be held on Monday afternoon, September 28.

What Operators Want to Know

Importance of Good Voice Work—The Phrases Used by the Operator Are But Tools; Her Voice Conveys the Meaning—Try to Answer the Questions Set Forth in This Installment

By Mrs. Mayme Workman,
Traffic Supervisor, Illinois Telephone Association, Springfield, Ill.

Someone has asked the question: "How important is voice work?" In telephone work it is most important, as our customers do not see us and so must judge us by our tone of voice.

The phrases we use are but tools; the voice we use conveys the meaning. The tone of voice tells whether you are friendly or are looking for a fight. The average person is more susceptible to the change of tone in the voice than to any selected words.

A dog is inclined to be suspicious of a stranger until that stranger speaks. As soon as the stranger talks, the dog will either wag his tail or raise the hair on the back of his neck. The tone of the stranger's voice will influence the dog to be friendly or to be ready to growl and bite. The sound of the human voice betrays the speaker, for the sound comes from the soul, while words fly off the tongue.

Much time and thought have been given to the selection of the phrases that we use in our work every day. It is intended that these phrases will convey to our customers attention, courtesy, a willingness to please, regret, and many other important factors. But we can spoil all this effect with a listless, tired, indifferent, monotonous, or discourteous tone.

We all know how much we appreciate having an attentive, pleasant and willing-to-please clerk serve us when we desire to make a purchase in one of our stores. These same qualities are appreciated by our telephone customers when we display them in our voice.

So let us all strive to live up to the slogan, "The Voice with a Smile," so that it will be a real pleasure for our customers to take their receiver off the hook and hear our pleasant, courteous and attentive, "Number, please?"

Questions from Illinois Operators.

1. Can a toll ticket ever be changed on a person-to-person call if the called party cannot be located and the calling party will talk with anyone? Is this still a person-to-person call?
2. How important is voice work in telephone operating?
3. What report do you enter on the ticket when you hold the call?
4. What method in introducing the new toll operating practice is best to follow?
5. Should a toll center operator be responsible for giving charges on all calls originating at a tributary office?

For answers to these questions from real Illinois operators, turn to page 41.

Suggestions for Personalizing Service

Be Friendly to Your Subscribers, Respect Their Criticism of Service and Encourage Them to Visit Exchange to Watch Switchboard in Actual Operation—Paper at Annual Traffic Conference of Illinois Telephone Convention

By Florence Welch,
Chief Operator, Illinois Southeastern Telephone Co., Mattoon, Ill.

My understanding of the meaning of personalized service is that in dealing with the public we get away from that old notion of being so businesslike and, instead, act more like real persons—real human beings.

Personalizing the service means to convey the impression to the person we are talking to that his request or his criticism will receive the personal attention of the one speaking to him. It means that we not only leave that impression but that we actually follow it up and do give our personal attention to correcting the difficulty and to giving an explanation that will be satisfactory to him.

Personalizing the service means more than being courteous. It means that we become more personal, and that we get rid of the attitude that we are a part of a big organization and that the complaining subscriber's trouble is just another incident in our busy lives.

Railroads used to be the worst offenders in the cold and impersonal way they treated their patrons. I can remember, when I was younger, I had the idea that a railroad ticket agent felt that he was doing me a favor when he sold me a ticket. My, how important he was! If it were necessary for me to ask him about a train, I fully expected him to bite my head off.

I was more afraid of a conductor on a train than I was of a policeman. Whoever heard of a conductor five years ago who'd say "good morning" to the travelers in his car or ask them if they were comfortable?

I am glad to see that railroads are now personalizing their service. I don't know whether that is due to the fact that there are now other ways of traveling, or whether it is because they have learned that courteous, human treatment does not cost anything, and might cause people to travel more.

Telephone companies used to be almost as bad. I can remember when, if a subscriber reported some trouble with his service, we thought it the proper thing to say, "What's your number?" and "What's your trouble?" And when he explained what the trouble was he was having, we would say, "I'll look it up." Usually the reply, "I'll look it up," was the last the subscriber heard of his case.

When we located the source of his trouble, if we did, we didn't think it necessary or businesslike to call him back to explain the facts of the case and to assure him we would do all we possibly could to avoid a repetition of it. We were too big—too busy—for that. It was not in keeping with our importance.

Now, we hold the view of the subscriber and accept the fact that his criticism is justified. His criticism enables us to find the weak spots in our operating force or methods, and we accept them in that spirit. When we find the source of his trouble, we call him back and tell him about it. We invite him to talk to us again in case he should have further difficulty.

I believe in addressing people by their names at every opportunity. If the subscriber I am talking to doesn't offer his name, I ask it early in the conversation.

I believe that when a chief operator or supervisor answers a call she should give her name, in addition to her title. For instance, when answering a chief operator's trunk, we should say, "This is the chief operator, Miss Welch, speaking." This gives the impression to the subscriber that he is dealing with a person, a human being, and not with some impersonal part of a machine.

There are many cases where a chief operator or a supervisor can and should call back a subscriber whom she knows has had some difficulty with the service, even though the subscriber makes no complaint. For instance, if he experienced a cut-off or some other fault, and the operator reported he appeared in bad humor about it, a call from the chief operator would very probably restore better feeling.

Sometimes, when dealing with a subscriber who is unreasonable or who requests something it is impossible to give, it is difficult to satisfy the subscriber by talking with him over the telephone. I have found it a good plan to invite such persons to the central office to see the switchboard in action.

I have had quite a few such cases, and in every case where I have been able to get the subscriber to come to the office he left with an altogether different impression of the service and of its workings. A woman I invited last week said upon leaving, "I never will say a cross word to the operator again."

Lately, we adopted the practice in our office of calling new subscribers after they had used the service a week or so. We introduce ourselves, ask them if the service is satisfactory in every way, and invite them to call the chief operator if at anytime they experience any difficulty with the service. We talk to them about out-of-town service, and we ask them to visit our office.

I was asked to say something about the work of the chief operator in a small office who also does commercial work. I have never worked in a small office where I had to do commercial work, so all I can say along this line is what I would do if I did work in such an office.

When persons came in to my office to pay their bills or on any other business, I would address them by name, and I would make it a point to talk to them about their personal affairs. If the subscriber had a complaint, or if there was a disputed item on his bill, I would never let my work interfere with giving his complaint all the time it deserved.

If my other work would not permit me at that time to investigate the complaint thoroughly, I would obtain the facts from the subscriber and assure him that I would make a thorough investigation and call him or visit him later.

I would try, when meeting customers face to face, to make as many friends as possible for the company and for myself. I would try, by everything I said and did, to let them understand that I liked my work, that I was proud of my job, and that I was working for the best telephone company in the world.

Influence of Thought on a Person's Environment.

Now, the problem of human living is a matter of continuous adjustment to a changing environment. For the purpose of accomplishing this an instrument has been provided.

That instrument is thought; for that is what thinking is. It is a tool, a device, an instrument whereby man is enabled to adapt himself to his environment; and by means of which, when necessary he can change the environment.

Now, in theory we all recognize the supreme importance of thinking, and yet, strange as it may seem, thinking is a process which most of us avoid whenever we can. For thinking is hard work; it is the hardest work there is—that's why there's so little of it done.—Charles M. Newcomb before the Executives' Club of Chicago.

New Thoughts on an Old Proverb

Miss Booster and Miss Operator Learn an Important Lesson Pertaining to Their Contacts from Curio Symbolizing Old Japanese Proverb, "Speak No Evil, See No Evil, Hear No Evil"

By L. A. Dudley.

"What have you there?" questioned an operator, as Miss Booster walked into the restroom one afternoon and started to unwrap a small package.

"Just a little curio that I picked up at an antique shop," replied Miss Booster, as she held up a queer-looking little object. "What do you think of it?"

"Why, that is the group of three monkeys, symbolizing that old Japanese proverb, 'Speak no evil, see no evil, hear no evil,'" returned the operator. "What are you going to do with it?"

"I am going to keep it here in the restroom," replied Miss Booster. "Don't you think it is appropriate?"

"Yes, I think it will make a cute ornament for the room," answered the operator. "How did you happen to select it in the first place?"

"Well, I was just looking around and happened to see it," replied Miss Booster. "Several times before, I had seen this same group of figures. But today it occurred to me that this little symbol was something more than a mere novelty. Does it not express a moral lesson that all of us would do well to heed?

"Our first reaction to the idea that we may sometimes be guilty of speaking evil, would probably be a quick dismissal of the thought. If someone were to accuse us of speaking evil, we, no doubt, would indignantly deny the charge. But if we should take the trouble to recall, and analyze, some of the things we said today, yesterday, or last week, isn't it possible that a feeling of guilt would steal over us; and a blush of shame would, perhaps, redden our cheeks?

Maybe we would remember that we had passed on an idle rumor about some other operator. At the time, we may have thought the matter too trivial to be considered seriously. If the matter had ended then and there, it would have been bad enough. But suppose this same rumor came back to us later, magnified and distorted. Could we truthfully deny that we had been guilty of speaking evil?

The man who stands guard, while his companion robs a house, is equally guilty of robbery. Likewise, those who help spread gossip are equally responsible for the damage it causes.

There is another form of evil speaking, less injurious than reflections on character, but capable of doing a great deal of harm. I refer to destructive criticism. A certain amount of constructive criticism is good for anyone. But destructive criticism can accomplish nothing useful. All it does is tear down and destroy.

If we criticize others because of the clothes they wear or because they do not measure up to our ideals, are we not guilty of passing destructive criticism?

How can we expect to help some other girl by verbally 'picking her to pieces' when she is not present to defend herself? If we really want to help her remedy some undesirable trait, or feel that it is our duty to advise her concerning certain matters, a little talk in private with her is the only logical means of accomplishing our purpose.

With these thoughts in mind, we clearly see that gossip, instead of being the harmless little creature we had pictured it, is really a monster that blackens character, ruins reputations, and destroys happiness. Let us resolve that this monster will receive no more nourishment through the door of our lips.

The proverb says to 'See no evil where none is meant; judge not the act, but the intent.' How much better off we all would be if we followed this advice. Why should we be so willing to see evil in the intent of others?

If we attend strictly to matters that concern us, we will not have time to look into the personal affairs of others. In matters that pertain to our work, it is essential that we see the good in those with whom we associate from day to day. A suspicious disposition acts as a boomerang. One who imagines that someone is always 'trying to put something over on him,' is usually not very dependable himself.

I remember one operator who, I thought, 'had it in for me.' Naturally, I 'had it in for her,' too. Neither of us could see any good in the other. This condition continued until, one day, I was taken ill and confined to my bed. The first day of my illness this operator came out to see me. She told me how sorry she was about everything and expressed hope for my speedy recovery. Both of us suddenly realized how foolish we had been, and admitted it. From that day on we became fast friends. Except for the peculiar circumstance that brought us together we might have gone on indefinitely seeing evil where none existed.

Last, but not the least important, is the counsel to 'hear no evil.' Gossip can not

(*Please turn to page* 41.)

WORK APPRECIATION

By Miss Anne Barnes,

Traveling Chief Operator, Iowa Independent Telephone Association, Des Moines, Iowa

Sometimes, when we think of the continual round of day, of season, of life, and of duty, it all seems monotonous to us. Why? Because we put out of our mind the blessed privilege of *living* day after day, and season after season, and remember only that we must earn our food, clothing, and shelter.

We say to ourselves and others when we feel very sorry for ourselves: "If only I were rich, then I would not have to devote so much time and effort just to provide myself with food, clothing and shelter." We all feel that way at times, don't we?

Recently, I was talking with a young woman canvasser who came to our door. She looked so weary, warm, and anxious as she stood framed in the doorway that I could not abruptly send her away, although I had no need for the article she was trying to sell.

"Do you mind if I sit down on the porch just a minute, please?" she asked. "I am so warm and foot-sore. I am not used to so much walking." Then she went on to tell me of a very good position she had recently lost owing to a reduction of employes in the office.

"I never realized what that position meant to me until I lost it," said the young woman. "What a grind it once seemed to go there day after day, year after year. What a privilege it would be now to go there, rain or shine, in hot or cold weather! And to think how I used to fret because I had to go there day in and day out, with no other outlook on life than work, work, work."

Doubtless there are many people out of employment today who once looked upon their job as a sort of a straight jacket, but who would now ask for no greater boon than to go back to it. "The day is always his who works in it with serenity and great aim," said Emerson.

Folks who work with *great aim* are productive people. As a rule, such employes are retained in service if it is at all possible to do so.

Here and There in Telephone Work

Urges Party Line Users Have Due Respect for Others' Rights.

Under the heading, "Appeal to Telephone Users," published in a local newspaper, an appeal is made by O. R. Cline, city gas and electric inspector of Long Beach, Calif., for cooperation and consideration among telephone users, particularly those subscribing to party line service. Mr. Cline says:

"Through the kindly aid of our city papers, we are appealing to telephone subscribers in Long Beach for their cooperation toward eliminating some abuses of telephone service of which we have had many complaints, especially from party-line subscribers.

The telephone is one of the four primarily domestic public utilities, established fundamentally upon the home-life requirements and support. But, unlike the others —water, gas and electric—it is highly cooperative in the nature and performance of its service—so much so that no one within himself can utilize it; and much less is he a 'law unto himself' as to how he may use it; for only by the cooperation of others is any service possible, or the facilities installed on his premises of any value to him.

It is doubtful if any of us ever have visualized, or thoughtfully followed to its finality, the part that 'cooperation' of the user has in the scheme and performance of telephone service. Our investments are for service privilege, but the service performance, or operation, is by act of mutual cooperation of the user, and, of course, must reflect the nature and fidelity of that cooperation. It must essentially be a 'Golden Rule' cooperation, if the highest standards of service are to be attained.

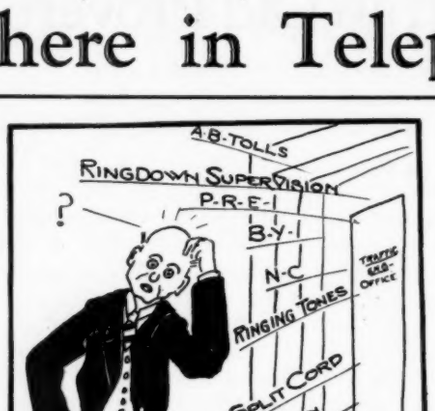
The long unnecessary engagement of any two lines, whether single or party lines, is obviously not good cooperation, when we recall how impatiently we have so often awaited the release of a busy line. But if we are on a single or individual line, we do not prevent the inter-connection of any of the other lines other than the two we are engaged with. This is not true, however, if we are on a party line, since we shut out both inlet and outlet service to all other parties on our party line during the time we use it or have our receiver off the switch.

It is readily apparent, therefore, that if we subscribe for the less costly party line service, we must use it with due respect for the rights of others on that line to its use. This is an obligation imposed with the offer of this class of service—and, if ignored, either the other subscribers on the line will be obliged to resort to higher cost service, or the offender will have to be eliminated from the party line privilege and either take the more expensive individual line service or do without.

It is evident that the offender is the one who should be required to change and the one that we shall insist upon doing so.

There is need for a more aggressive policy of the utility in the protection of its patrons in several particulars of service relationship, both as between the patron and the utility, and as between patrons in their respective rights to service. We believe, however, that this will gradually be brought about, as many other improvements in standards of service have been.

Let me say finally that the burden of this plea is 'Golden Rule' cooperation in telephone use. It will insure more efficient service, happier patrons, lower the cost of service by making all classes of service more satisfactory and practical and in every way promote a higher quality of telephone service."



TRAFFIC ENGINEERS

By "Buck."

A-standin' jes' outside a door marked "Traffic Engineer," I listened to remarks come pourin' out that sounded queer:

Call circuits, A-B tolls an' such an' split-cord operation an' panels, jacks; I jes' could clutch part of their conversation of tributary tandem stuff an' ringdown supervisions an' lotsa other traffic guff 'bout multiple positions. They used a lotta letters, too, like they was in a hurry: B-Y, N-C, T an' U an' O-D an' P-R-E.

They talked o' dial pilot lamps, code-ringin', switchboard-markin', an' other language, too, that stamps this gang where e'er they're parkin', as traffic engineers, who've got a language all their own, an' you may savvy it or not.

Sometimes they talk o' tone, of ringin' tones, collect tones an' trouble tones, an' such durn language of the telephones. You sure would git in dutch if you should try to foller all their doggone language queer. To make it out you'd hafta call a traffic engineer.

P. B. X. Current Supply; Maintenance of Storage Battery (Ctd.).

By John A. Bracken.

In large P. B. X. switching equipment installations in which the storage battery is of the lead-lined cell type, it is generally of rare occurrence that a ground connection is established with the lead lining of one of the battery cells, and it does not usually happen except through carelessness or improper installation of the cells.

In case it should happen, at any time, that the lead lining of a cell becomes grounded, the entire battery would be grounded at that particular point, and if one pole of the battery was necessarily permanently connected to ground as part of the proper operation of the P. B. X. equipment, all of the storage cells between the two ground connections (permanent and accidental) would have set up between them a path for the escape of the electric current.

Unless the accidental ground is discovered and removed, it is only a question of a very short time before the intervening cells in the group will be so reduced in capacity that the entire battery will be put out of service.

In order to avoid accidental grounds on the lead lining of P. B. X. storage battery cells, the ends of foreign wires or other metallic substances not part of the regular battery equipment and connections should not, under any circumstances, be allowed to come in contact with any part of the cells. If it is discovered, on inspection, that a leak has taken place in one of the cells, the trouble should be corrected immediately.

Care must be taken to protect and preserve the wooden boxes of the lead-lined battery cells, if the battery is thus installed. The woodwork being thoroughly painted at the time of installation, oiling the wooden boxes at least every three months is a good maintenance practice. For this purpose boiled linseed oil applied with a cloth rather than a brush is recommended and, in consequence thereof, repainting of the wooden boxes will then be required less frequently.

Occasionally, upon inspection of a P. B. X. storage battery, it is found that the polarity of one of the cells is reversed. When the battery is charged from a regular generator or from an alternating current rectifier, this trouble seldom occurs

except when a cell may lose its capacity. And when, on discharge, this cell will discharge more rapidly than the other cells in the battery group, continuing to do so until it is completely discharged, then the other cells will cause the electric current to be forced through it in the opposite direction, causing a reverse of the polarity in this particular cell.

If the cells are properly cared for and regular note is taken of the specific gravity value, this last case will seldom if ever happen, because any sudden loss of capacity will be very quickly noticed and the necessary steps taken to remedy the trouble.

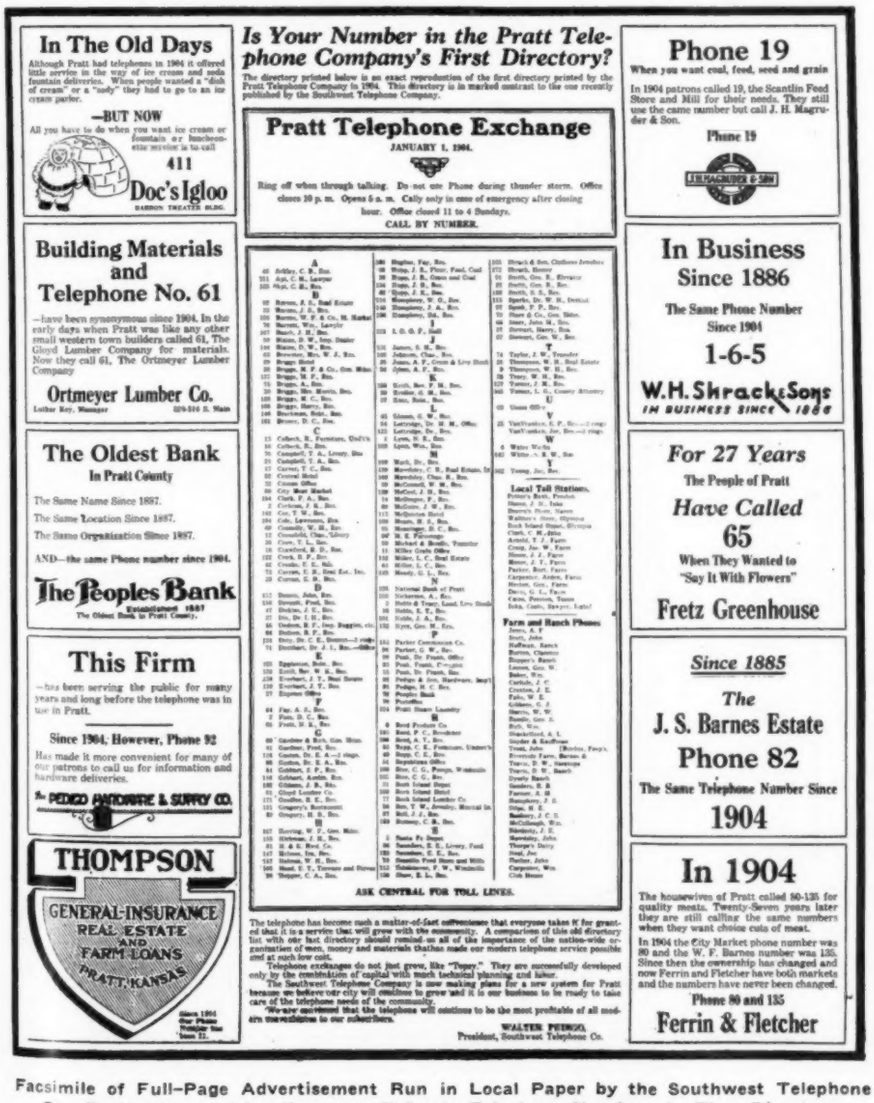
In some P. B. X. switchboard installations the battery is charged direct from an ordinary direct current incandescent electric light circuit, either through a single lamp or a bank of lamps, depending upon the required amount of charging current. And due to repairs or changes on the electric light circuit outside or inside the building where the P. B. X. battery is located, the charging wires may become reversed. If not found out at once, this condition will remain until the battery is discharged and may be recharged in a reversed direction, or until the failure of the current supply to the switchboard is noticed by the person in attendance.

The only remedy for this latter condition is to reverse the battery charging leads to conform to the change in the local wiring arrangement, testing the battery with a direct current voltmeter, and to recharge it in the right direction until it is restored to normal operating condition.

If only a single cell in certain types of P. B. X. battery installations has its polarity reversed with respect to the others, it should be left in series when the battery is receiving its regular charge and then disconnected and kept out of service while the battery is discharging. When the battery is again receiving its regular charge, the single cell should be connected in the circuit again and this operation should be repeated until the cell is restored to its normal condition.

Before doing this, the cell should be thoroughly examined and any internal trouble removed, such as short-circuits between plates, sediment touching plates, or the specific gravity of the electrolyte being too high or too low.

In those installations where it is inadvisable to charge the single cell as previously outlined, it should be removed from the group and charged from an independent source through a special resistance, care being taken not to charge the cell at too high a rate. In this instance the charging rate that governs the main group of cells in the battery would govern the charging of the single cell.


In The Old Days
Although Pratt had telephones in 1904 it offered little service in the way of ice cream and soda fountain deliveries. When people wanted a "dish of cream" or a "soda" they had to go to an ice cream parlor.
—BUT NOW
All you have to do when you want ice cream or fountain or luncheonette service is to call
411
Doc's Igloo
Is Your Number in the Pratt Telephone Company's First Directory?
The directory printed below is an exact reproduction of the first directory printed by the Pratt Telephone Company in 1904. This directory is in marked contrast to the one recently published by the Southwest Telephone Company.
Pratt Telephone Exchange
JANUARY 1, 1904.
Ring off when through talking. Do not use Phone during thunder storm. Office closes 10 p. m. Opens 6 a. m. Calls only in case of emergency after closing hour. Office closed 11 to 4 Sundays.
CALL BY NUMBER.
Phone 19
When you want coal, feed, seed and grain
In 1904 patrons called 19, the Scantlin Feed Store and Mill for their needs. They still use the same number but call J. H. Magruder & Son.
Phone 19
J. H. MAGRUDER & SON
Building Materials and Telephone No. 61
—have been synonymous since 1904. In the early days when Pratt was like any other small western town builders called 61, The Lloyd Lumber Company for materials. Now they call 61, The Ortmeyer Lumber Company
Ortmeyer Lumber Co.
In Business Since 1886
The Same Phone Number Since 1904
1-6-5
W.H. Shrack & Sons
IN BUSINESS SINCE 1886
The Oldest Bank
In Pratt County
The Same Name Since 1887.
The Same Location Since 1887.
The Same Organization Since 1897.
AND—the same Phone number since 1904.
The Peoples Bank
Established 1887
The Oldest Bank in Pratt County.
For 27 Years
The People of Pratt
Have Called
65
When They Wanted to "Say It With Flowers"
Fretz Greenhouse
This Firm
—has been serving the public for many years and long before the telephone was in use in Pratt.
Since 1904, However, Phone 92
Has made it more convenient for many of our patrons to call us for information and hardware deliveries.
The PEDIGO HARDWARE & SUPPLY CO.
Since 1885
The
J. S. Barnes Estate
Phone 82
The Same Telephone Number Since
1904
THOMPSON
GENERAL INSURANCE
REAL ESTATE
AND
FARM LOANS
PRATT, KANSAS
In 1904
The housewives of Pratt called 80-135 for quality meats. Twenty-Seven years later they are still calling the same numbers when they want choice cuts of meat.
In 1904 the City Market phone number was 80 and the W. F. Barnes number was 135. Since then the ownership has changed and now Ferrin and Fletcher have both markets and the numbers have never been changed.
Phone 80 and 135
Ferrin & Fletcher
ASK CENTRAL FOR TOLL LINES.
The telephone has become such a matter-of-fact convenience that everyone takes it for granted that it is a service that will grow with the community. A comparison of this old directory list with our last directory should remind us all of the importance of the nation-wide organization of men, money and materials that has made our modern telephone service possible and at such low cost.
Telephone exchanges do not just grow, like "Topsy." They are successfully developed only by the combination of capital with much technical planning and labor.
The Southwest Telephone Company is now making plans for a new system for Pratt because we believe our city will continue to grow and it is our business to be ready to take care of the telephone needs of the community.
"We are convinced that the telephone will continue to be the most profitable of all modern conveniences to our subscribers."
WALTER PEDIGO,
President, Southwest Telephone Co.

Facsimile of Full-Page Advertisement Run in Local Paper by the Southwest Telephone Co., Pratt, Kans. Advertisements Refer to Telephone Numbers in First Directory.

Unusual Advertisement Contains Company's First Directory.

The Southwest Telephone Co., Pratt, Kans., has resorted to the unusual in advertising. Considerable favorable comment and good feeling has resulted, it is said, from a full-page advertisement which appeared in the Pratt Daily Tribune and is reproduced in the accompanying illustration.

Advertisements of long-established Pratt businesses border the page, and many of them point out the fact that they have had the same telephone number since service began. The center of the page contains a facsimile of the town's first directory.

The message beneath it signed by President Walter Pedigo of the Southwest Telephone Co., says:

"The telephone has become such a matter-of-fact convenience that everyone takes it for granted that it is a service that will grow with the community. A comparison of this old directory list with our last directory should remind us all of the importance of the nation-wide organization of men, money and materials that has made our modern telephone service possible and at such low cost.

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Company Enters with Float in City's Celebration Parade.

On August 26 to 28, Galion, Ohio, celebrated its 100th birthday. The Northern Ohio Telephone Co. took part by entering the float, shown in the accompanying illustration, in the parade held on August 27. In the decoration of the float crepe paper was laid in layers of white, green and orchid.

The four girls on the corners of the float represent Great Britain, Spain, France, and Germany and each carry a small flag of one of those countries. The fifth girl in the center of the float, sitting

at the automanual switchboard, represents Galion, Ohio.

Credit is given to the Dakota Central Telephone Co. for the original idea of the float. A picture of the float used by that company appeared in the June 27 issue of TELEPHONY.

The participation of telephone companies in celebrations of this kind undoubtedly helps to strengthen their public relations, in addition to showing the excellent type of girl employes of the company.

Float Entered by the Northern Ohio Telephone Co. in the Parade During the Celebration of the 100th Birthday of Galion, Ohio.

New Underground Cable Placed on Pacific Coast.

A new underground telephone cable has been constructed between Seattle and Everett, Wash., a distance of 30 miles. This is the longest underground telephone cable in the state of Washington, and through it telephone conversations now pass between Seattle and cities to the north—Vancouver, B. C., Victoria, Bellingham and other places located between Puget Sound and the Cascades.

The laying of this cable was a difficult engineering task, as quicksands, bogs, underground streams, hard rock, great stumps, roots and other construction bogies were encountered to a surprising extent. A crew averaging 150 men a day worked for a full year, aided by machinery, to dig the trench and lay the conduit.

"I Wonder Why" of an Observing, Traveling Telephone Engineer.

BY RAY BLAIN.

I wonder why some installers are so careless about the location of substation protectors?

A properly installed protector performs a real service; but if not, it is generally a constant cause of trouble. The accompanying photograph shows a protector installation which was actually found in a small exchange, the protector being placed on the side of a building and exposed to the full force of the elements.

The maintenance man claimed it had actually given service under these adverse conditions. That it would even hold together for any length of time out in the weather seems to speak well for the manufacturers of modern substation protector equipment.

A protector of this type should always be installed in a dry location. Installations on open porches should be avoided as they usually get damp during rainy weather. Neither should this type be installed under buildings where dampness will generally cause leakage. Basement locations for the protectors are generally good if proper ventilation is provided.

Personally I prefer the substation protector recently placed on the market, which is built for outside installations. Weatherproof metal boxes in which the ordinary substation protector can be installed are also very good for the outside installation.

The outside protector seems to be the ideal arrangement, for why should we conduct the dangerous protential of lightning inside the building and then take a chance of conducting it outside again to the ground? It seems a much better plan to take care of it on the outside of the building for if a leakage takes place, it is not so likely to cause damage. Added to this it is much easier to make the outside installation where ground rods are required, as only one hole need be drilled for the entrance of the line. Subscribers never did like protectors inside the house.

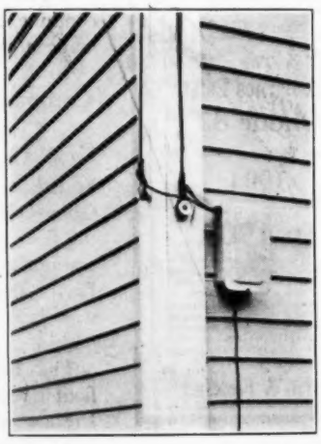
The outside protector is much more convenient for the clearing of trouble and gives a test point on the building without the use of a ladder. In certain localities during periods of the year it may be necessary to clean protector blocks frequenty, and with the outside protector this task is easier and quicker. Then also if the subscriber is not home and the house locked when the troubleman calls, the line can be cleared without a second visit.

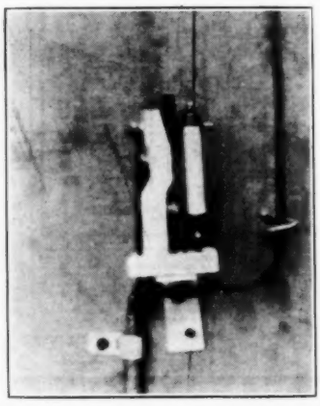
Progressive telephone companies should investigate this new type of substation protection which brings us a step nearer the perfect telephone system.

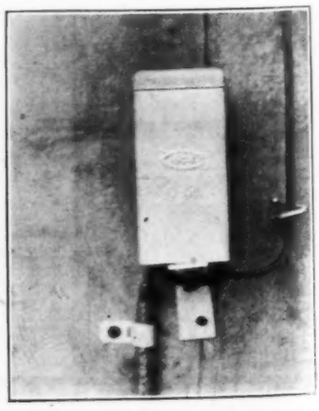
Paris-London Telephone Calls in Excess of 1,000 Daily.

The daily average of telephone calls between London and Paris is more than 1,000 per day, according to advices received in the electrical division of the U. S. Department of Commerce from representatives abroad.

Recent political events have resulted in heavy telephone traffic between London and the Continent, especially with Germany. One day recently the excess over the normal reached 25 per cent, the total for the day being over 1,000 calls. The daily average between London and Paris is, however, considerably larger than that.







Outside Protector Installation Actually Found in a Small Exchange—Metal Box for the Outside Installation of the Ordinary Protector—New Substation Protector Built for Outside Installations—Weatherproof Metal Boxes in Which Ordinary Protector Can Be Installed

The Financial Side of Companies

Miscellaneous Items of Interest Regarding Financial Matters of Telephone Companies—New Securities Issued During Past Month—Figures From the Monthly Reports of Larger Companies to Interstate Commerce Commission

Class A Companies Submit June Financial Reports.

Reports of 103 Class A telephone companies for the month of June, 1931, have been submitted to the Interstate Commerce Commission. Compilations from these reports show gross operating revenues of $97,507,438 for June of this year as compared with $99,496,542 for 1930. This is a decrease of $1,989,104, or 2.0 per cent for 1931.

Gross operating expenses for June, 1931, were $65,087,744, as compared with $68,245,925 for 1930. This is a decrease in expenses of $3,158,181 for 1931 or 4.6 per cent. This leaves net telephone operating revenues of $32,419,694 and $31,250,617 for the month of June, 1931 and 1930, respectively, an increase of 3.7 per cent.

Taking into consideration all other items of expense, including taxes, operating income totaled $23,628,325 for June, 1931, as compared with $22,769,195 for the corresponding month of 1930, an increase of 3.8 per cent.

Operating revenues for the six months ended with June, 1931, were $585,163,497, as compared with $594,446,206 for 1931, showing a decrease of 1.6 per cent for 1931. Operating expenses for the same period were $389,656,076 and $404,783,136 for 1931 and 1930 respectively, a decrease of 3.7 per cent. The operating income for the 1931 six months' period amounted to $141,362,438, an increase of 2.7 per cent over 1930, when it was $137,699,345.

The companies, which include only those having annual operating revenues in excess of $250,000, had 17,094,402 stations in service at the end of June, 1931, a loss of 123,780 stations or 0.7 per cent over 1930, when there were 17,218,182.

Complete data for the Ohio Cities Telephone Co. and the South East Public Service Corp. of Virginia were not available for inclusion in this report.

International Telephone & Telegraph Corp. Cuts Dividend.

The directors of the International Telephone & Telegraph Corp. on September 10 halved the company's dividend rate by declaring a quarterly dividend of 25 cents, compared with 50 cents paid in all previous quarters since the summer of 1929, when each share of $100 par stock was exchanged for three no-par shares. The rate on the old stock had been 6 per cent from the date of organization to retirement in May, 1929.

Net income of the company for the first half of 1931 amounted to $5,440,294 after charges, taxes and depreciation, equal to 82 cents a share on 6,642,508 shares outstanding on June 30, 1931. For the second quarter earnings were 39 cents a share, against 43 cents a share in the first quarter. The six-month figure compares with $6,826,831 net income in the first half of 1930, equal to $1.04 a share on 6,580,599 shares.

Total earnings of the company and subsidiaries amounted to $47,963,224 in the first half of 1931, comparing with $52,212,595 in the 1930 period. Against this decline of $4,250,000 in revenues appears a reduction of $2,200,000 in operating expenses, taxes and depreciation, leaving net earnings of $10,374,690, against $12,422,205 in the 1930 period, down about $2,047,000.

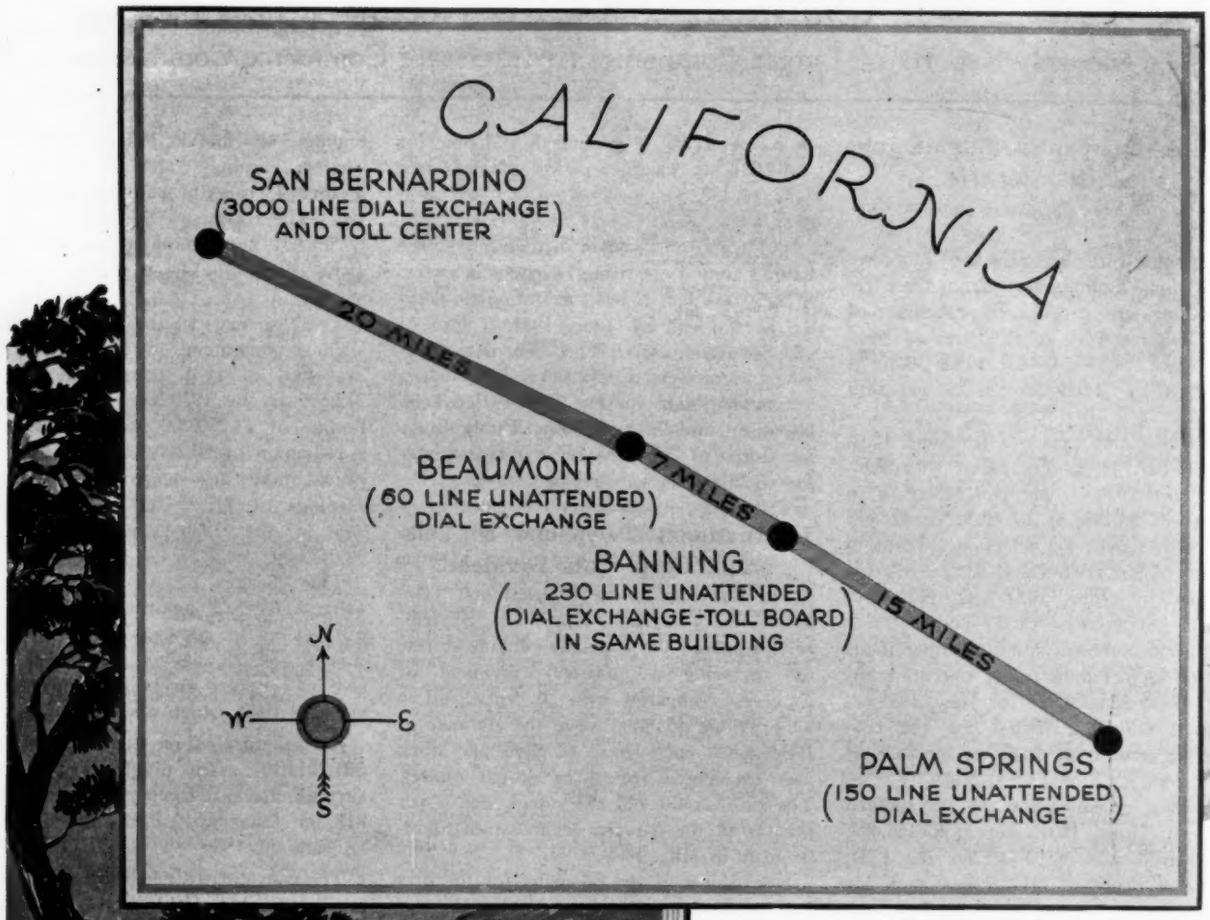
The charges of associated companies were $2,049,522, against $3,009,111, while interest on the company's debenture bonds was $2,884,875, against $2,586,266, exclusive of interest on bonds converted into stock in 1930, which was only $223.

Earned surplus on June 30, 1931, was $21,201,819, after dividends and sundry surplus charges, comparing with $22,645,817 on January 1, 1931, and $28,704,742 on June 30, 1930.

The consolidated net income of the Postal Telegraph & Cable Corp., a subsidiary, amounted to $607,765 for the first half of 1931, before interest on collateral trust 5

Items.	Month of June		Increase or decrease (*).		Six months ended with June		Increase or decrease (*).	
	1931.	1930.	Amount.	Ratio, Pct.	1931.	1930.	Amount.	Ratio, Pct.
Number of company stations in service at end of month	17,094,402	17,218,182	*123,780	*0.7	.....	.....	.....	...
Revenues:								
Subscribers' station revenues	$59,854,523	$60,257,008	$ *402,485	*0.7	$361,339,908	$361,725,171	$ *385,263	*0.1
Public pay station revenues	4,070,548	4,081,703	*11,155	*.3	24,304,645	25,249,660	*945,015	*3.7
Miscellaneous exchange service revenues	944,137	890,916	53,221	6.0	5,534,946	5,424,712	110,234	2.0
Message tolls	25,762,878	27,324,122	*1,561,244	*5.7	152,942,713	161,520,972	*8,578,259	*5.3
Miscellaneous toll line revenues	4,010,225	4,140,222	*129,997	*3.1	24,032,477	24,242,976	*210,499	*.9
Sundry miscellaneous revenues	2,830,573	2,767,619	62,954	2.3	16,803,153	16,076,210	726,943	4.5
Licensee revenue—Cr.	1,262,065	1,283,722	*21,657	*1.7	7,491,879	7,583,970	*92,091	*1.2
Licensee revenue—Dr.	1,227,511	1,248,770	*21,259	*1.7	7,286,224	7,377,465	*91,241	*1.2
Telephone operating revenues	$97,507,438	$99,496,542	$*1,989,104	*2.0	585,163,497	$594,446,206	$*9,282,709	*1.6
Expenses:								
Depreciation of plant and equipment	$16,885,231	$16,032,103	$ 853,128	5.3	$100,408,235	$ 94,454,172	$ 5,954,063	6.3
All other maintenance	16,096,222	16,791,388	*695,166	*4.1	92,405,479	98,743,465	*6,337,986	*6.4
Traffic expenses	17,534,597	19,973,119	*2,438,522	*12.2	107,224,660	120,114,432	*12,889,772	*10.7
Commercial expenses	8,844,087	9,266,003	*421,916	*4.6	53,793,063	56,156,070	*2,363,007	*4.2
General and miscellaneous expenses	5,727,607	6,183,312	*455,705	*7.4	35,824,639	35,314,997	509,642	1.4
Telephone operating expenses	$65,087,744	$68,245,925	$*3,158,181	*4.6	$389,656,076	$404,783,136	*$15,127,060	*3.7
Net telephone operating revenues	$32,419,694	$31,250,617	$1,169,077	3.7	$195,507,421	$189,663,070	$ 5,844,351	3.1
Other operating revenues	$ 140,451	$ 116,311	$ 24,140	....	$ 541,525	$ 462,309	$ 79,216	....
Other operating expenses	76,253	69,292	6,961	....	344,987	312,304	32,683	....
Uncollectible operating revenues	744,399	771,601	*27,202	*3.5	4,667,408	4,528,006	139,402	3.1
Operating income before deducting taxes	31,739,493	30,526,035	1,213,458	4.0	191,036,551	185,285,069	5,751,482	3.1
Taxes assignable to operations	8,111,168	7,756,840	354,328	4.6	49,674,113	47,585,724	2,088,389	4.4
Operating income	$23,628,325	$22,769,195	$ 859,130	3.8	$141,362,438	$137,699,345	$ 3,663,093	2.7
Ratio of expenses to revenues, per cent	66.75	68.59	*1.84	....	66.59	68.09	*1.50	....

Table of Statistics Compiled from June Reports of Class A Companies to the Interstate Commerce Commission.



In the above illustrated Strowger Automatic Dial network, San Bernardino is owned and operated by the Associated Telephone Company, Ltd., while the other three exchanges are owned and operated by the Southwestern Home Telephone Company. The special calls for these latter three are serviced during the day by the toll board at Banning, but during the night by the toll board at San Bernardino.

STROWGER AUTOMATIC
DIAL SYSTEMS

GENERAL EXPORT DISTRIBUTOR
The Automatic Electric Company, Ltd., Chicago, U. S. A. and Antwerp, Bel
In Canada · Independent Sales and Engineering Co., Ltd., Vancou
In Australasia · Automatic Telephones Ltd., Sydney
In Japan · Automatic Telephones Ltd. of Japan, Tokyo
In China · Automatic Telephones of China Federal Inc., U. S. A.
In South Africa · Automatic Telephones (South Africa) Ltd., Johannes

When communicating with Automatic Electric Inc., please mention TELEPHONY.

ble Inter-Company Operation— h Strowger Automatic Equipment

ONE of the outstanding advantages of Strowger Automatic Dial Equipment is its universality. By this is meant its universal application to every exchange or network problem, due to the fact that its practices are standard and its equipment is highly flexible in its ability to fit any and all conditions.

A practical example of how this flexibility contributes to the over-all operating efficiency of modern networks, even though the component exchanges may be owned and operated by different companies, is shown in the accompanying illustration. Here the San Bernardino exchange is owned by one company, while the other three exchanges are owned by another. However, the operating arrangement is such that toll and special calls at night for all four exchanges are handled at San Bernardino—this arrangement naturally increasing the operating efficiency of the group as a whole.

Many similarly arranged networks using both Strowger full automatic and semi-automatic equipment are now in operation in many countries. A new booklet has just been published showing some of the most interesting of these. It is yours for the asking. Send for it.

This is one of a series of advertisements illustrating the application of Strowger Dial operation to telephone exchange networks.

Automatic Electric Inc.

Manufacturers of
Strowger Automatic Dial Telephone and Signaling Systems
Factory and General Offices: 1033 West Van Buren St., Chicago, U. S. A.

ASSOCIATED COMPANIES
American Electric Company, Inc., Chicago
International Automatic Telephone Co., Ltd., London
Automatic Telephone Manufacturing Co., Ltd., Liverpool
The New Antwerp Telephone and Electrical Works, Antwerp
Eugene F. Phillips Electrical Works Limited, Montreal

per cent gold bonds and debenture stock, against $1,581,576 in the same period in 1930. After this interest there was a deficit of $658,990, contrasting with a net income of $314,821 the year before.

Total earnings were $17,696,119, against $19,431,881 in the first half of 1930, and net earnings after expenses, taxes and depreciation were $619,930, against $1,809316.

Current Price Quotations on Listed Telephone Stocks.

	September 19, 1931. High.	Low.	Last.
American Telephone & Telegraph Co.	159	140¼	140⅞
Associated Telephone & Telegraph Co., A	66	63½	65½
Associated Telephone & Telegraph, 6% pfd.	86	85½	86
Associated Telephone & Telegraph, 7% pfd.	98½	97	97
Associated Telephone Utilities Co.	23¼	19⅞	20
Associated Telephone Utilities Co., A	70	70	70
Associated Telephone Utilities Co., 6% pfd.	78	78	78
Associated Telephone Utilities Co., 7% pfd.	83½	83½	83½
Bell Telephone of Canada	125½	123	123
Bell Telephone Co. of Pennsylvania	116¼	116¼	116¼
Cincinnati & Suburban Bell Telephone Co.	89	89	89
Chesapeake & Potomac Telephone Co., pfd.	118	118	118
International Telephone & Telegraph Corp.	21⅞	17¾	17¾
Middle Western Telephone Co.	22¾	22	22¾
Mid-West States Utilities.	6	5⅞	5⅞
New York Telephone Co., pfd. (6½)	117½	116½	116½
Pacific Telephone & Telegraph Co.	125	118½	118½
Pacific Telephone & Telegraph Co., pfd.	131	129½	129½
Southwestern Bell Telephone Co., pfd.	122½	122¼	122¼
Telephone Bond & Share Co., 7% pfd.	99½	99	99
Telephone Bond & Share Co., A	52⅞	51¼	52⅞
Western Power, Light & Telephone Co.	21½	19	19⅞

	Bid. Sept. 19.	Asked. Sept. 19.	Bid. Sept. 18.
Cuban Telephone Co., 8	110	...	110
Cuban Telephone Co., 7, pfd.	77	82	77
Lincoln Telephone & Telegraph Co.	120	...	120
Mountain States Telephone & Telegraph Co., 8	143	145½	145
Peninsular Telephone Co., $1.40	18	22	19
Peninsular Telephone, pfd., 7	101	104	101
Porto Rico Telephone Co.	85	...	85
Rochester Telephone Corp., 1st pfd.	107	111	109
Southern New England Telephone Co., 8	153	158	157
National Telephone & Telegraph Corp., 7% pfd.	100	...	103
National Telephone & Telegraph Corp., A	50	...	...
Wisconsin Telephone Co., pfd.	111	...	111

July and Seven Months' Earnings of Larger Telephone Companies.

American Telephone & Telegraph Co.

	1931.	1930.
July gross	$ 8,981,592	$ 9,280,941
Operating income	2,704,112	2,204,432
Seven mos. gross	65,382,486	67,470,526
Operating income	20,146,617	19,890,967

Carolina Telephone & Telegraph Co., Tarboro, N. C.

July gross	$ 102,846	$ 102,686
Net earnings	22,182	21,745
Seven mos. gross	730,488	770,353
Net earnings	175,362	195,110

Home Telephone & Telegraph Co., Fort Wayne, Ind.

July gross	$ 110,050	$ 111,554
Net earnings	25,483	15,883
Seven mos. gross	777,887	790,558
Net earnings	163,273	145,045

Northwestern Bell Telephone Co.

	1931.	1930.
July gross	$ 2,907,151	$ 2,952,296
Net earnings	673,724	677,355
Seven mos. gross	20,088,137	20,128,619
Net earnings	4,868,020	4,760,662

United Telephone Co., Abilene, Kans.

July gross	$ 173,416	$ 185,874
Net earnings	42,562	43,654
Seven mos. gross	1,178,845	1,199,244
Net earnings	235,507	260,763

Chesapeake & Potomac Telephone Co., of Baltimore.

July gross	$ 1,168,696	$ 1,150,766
Net earnings	283,408	239,992
Seven mos. gross	8,229,299	8,084,801
Net earnings	2,084,528	1,864,419

Chesapeake & Potomac Telephone Co., of New York.

July gross	$ 747,453	$ 697,004
Net earnings	189,389	118,613
Seven mos. gross	5,357,589	5,036,880
Net earnings	1,324,065	974,322

Chesapeake & Potomac Telephone Co., of Virginia.

July gross	$ 721,066	$ 687,069
Net earnings	195,067	160,704
Seven mos. gross	4,949,047	4,726,411
Net earnings	1,420,866	1,155,749

Southern Bell Telephone & Telegraph Co.

July gross	$ 4,880,270	$ 5,086,823
Net earnings	1,095,154	1,110,870
Seven mos. gross	35,122,983	36,423,948
Net earnings	8,827,798	8,442,737

Southern California Telephone Co.

July gross	$ 3,316,233	$ 3,366,265
Net earnings	826,602	824,413
Seven mos. gross	23,610,869	18,426,891
Net earnings	6,222,549	4,683,139

Bell Telephone Co. of Pennsylvania.

July gross	$ 6,019,062	$ 6,175,414
Net earnings	1,343,372	1,262,765
Seven mos. gross	43,324,660	44,516,343
Net earnings	11,062,618	10,661,682

Tri-State Telephone & Telegraph Co., St. Paul, Minn.

July gross	$ 484,591	$ 484,706
Net earnings	130,371	123,255
Seven mos. gross	3,363,329	3,383,092
Net earnings	891,385	952,698

New Jersey Bell Telephone Co.

July gross	$ 4,241,284	$ 4,239,453
Net earnings	936,865	792,767
Seven mos. gross	29,022,470	29,060,249
Net earnings	6,582,195	5,974,516

Diamond State Telephone Co., Philadelphia, Pa.

July gross	$ 165,297	$ 165,006
Net earnings	48,490	41,741
Seven mos. gross	1,161,868	1,141,177
Net earnings	340,026	301,572

Peninsular Telephone Co., Tampa, Fla.

July gross	$ 162,796	$ 159,678
Net earnings	50,062	44,925
Seven mos. gross	2,252,372	1,257,904
Net earnings	430,192	406,929

Pennsylvania Telephone Corp., Erie, Pa.

July gross	$ 214,916	$ 215,119
Net earnings	90,672	102,822
Seven mos. gross	1,473,403	1,515,491
Net earnings	700,827	634,632

Southwestern Bell Telephone Co.

July gross	$ 6,785,831	$ 7,253,672
Net earnings	1,402,042	1,683,072
Seven mos. gross	48,808,514	50,773,571
Net earnings	11,508,560	12,502,534

Ohio Bell Telephone Co.

July gross	$ 3,586,595	$ 3,653,745
Net earnings	761,072	710,116
Seven mos. gross	25,299,106	25,927,419
Net earnings	5,613,864	5,395,820

Michigan Bell Telephone Co.

July gross	$ 3,254,125	$ 3,464,726
Net earnings	520,993	442,639
Seven mos. gross	23,130,763	24,564,522
Net earnings	3,942,025	4,019,800

Associated Telephone Co., Ltd., Los Angeles, Calif.

	1931.	1930.
July gross	$ 223,368	$ 213,506
Net earnings	85,158	87,580
Seven mos. gross	1,534,247	1,449,176
Net earnings	602,726	564,262

New England Telephone & Telegraph Co.

July gross	$ 6,386,551	$ 6,386,852
Net earnings	1,329,018	1,257,245
Seven mos. gross	43,836,077	43,630,496
Net earnings	10,461,641	9,803,149

Pacific Telephone & Telegraph System.

July gross	$ 8,855,529	$ 9,041,723
*Net income	1,584,032	1,642,325
Seven mos. gross	61,955,321	62,518,914
*Net income	11,299,096	9,552,697

Mutual Telephone Co., Hawaii.

July gross	$ 130,445	$ 126,232
Net earnings	30,602	34,490
Seven mos. gross	899,471	878,745
Net earnings	207,181	234,394

West Coast Telephone Co., Everett, Wash.

July gross	$ 117,731	$ 126,686
Net earnings	35,176	36,082
Seven mos. gross	810,879	873,725
Net earnings	251,014	254,370

Home Telephone & Telegraph Co. of Spokane, Wash.

July gross	$ 134,326	$ 140,879
Net earnings	32,172	27,571
Seven mos. gross	953,616	1,005,578
Net earnings	206,363	176,551

Dakota Central Telephone Co., Aberdeen, S. D.

July gross	$ 133,008	$ 144,795
Net earnings	31,114	33,406
Seven mos. gross	1,049,679	1,107,157
Net earnings	220,323	264,571

Cincinnati & Suburban Bell Telephone Co.

July gross	$ 871,657	$ 872,402
Net earnings	229,530	179,803
Seven mos. gross	6,135,450	6,123,171
Net earnings	1,549,057	1,335,945

Profits of British Cable-Radio Combine Drop.

The continued decline in the traffic receipts of Imperial & International Communications, Ltd., the £30,000,000 cable and wireless combine, has led to the appointment of a special committee of three by the Imperial Communications advisory committee to inquire into its affairs.

Shareholders in the various combine companies have been considerably perturbed by the discrepancy between the standard net earnings fixed at £1,865,000 and the actual profit for 1930 which was £326,248, as compared with £2,023,155 in the 21 months ended December 31, 1929. The decrease is at the rate of £829,840 per annum and may be entirely attributed to the fall in message receipts.

The payment of the last dividend on the preference shares resulted in a draft upon the reserves to the extent of £200,000. Profit of Cables & Wireless, Ltd., the holding company, was £1,302,385, against £1,327,311 for the 21 months ended December 31, 1929.

The I. I. C. has been meeting the trade slump by effecting economies upon those of its staff not under five-year contracts and by reducing the number of its directors

to 14. Aside from rationalizing its internal forces, its managing director, J. C. Dennison-Pender, pointed out at the general meeting on July 30 that little further could be done. The cables must be maintained up to standard or abandoned, and this last is unthinkable.

Decreased business activity is immediately reflected in the number of messages sent, but the volume has not so much decreased as the use of the rapid and higher-priced services. More and more messages are being sent at the deferred rate. The direct Post Office radio services between various countries were given as another cause of the decline, the competition imperiling the standard channels. More cooperation was asked for between the cable and radio interests.

The situation facing the I. I. C. has brought forth two editorials in the "Financial News" which attempt to show that the whole organization of the combine is faulty. It is claimed that the I. I. C. is "hopelessly over-capitalized even for normal conditions" and that it is "hopelessly burdened with assets heaped onto it at a moment when their earning powers were ebbing fast."

In the editorial writer's view, "drastic measures" will have to be taken to adjust the internal arrangement of the combine, where there is a complex interchange of profits, and to allow for the large share of traffic which is going by radio in place of the cables.

Traffic receipts of I. I. C. for the first six months of the current year amounted to £2,383,949, a decline of £423,774 as compared with the corresponding period of 1930.

Western Electric Omits Dividend; A. T. & T. Slightly Affected.

The directors of the Western Electric Co. on September 15 omitted the quarterly dividend due at this time. A dividend of 75 cents was declared three months ago, and $1 a share was paid for the first quarter of 1931. The announcement on September 15 said that "owing to the decreased volume of sales, the directors took no action on the dividend for the third quarter ending September 30." A total of 5,900,493 shares of the company's 6,000,000 shares is owned by the American Telephone & Telegraph Co.

Announcement of the dividend action soon after noon was followed by a 3-point drop in the price of American Telephone & Telegraph Co. stock. After ranging between 155 and 157 in the morning, the stock fell to 151¾ after the news appeared on the tickers. It closed at 152⅝, with a loss of 4⅛ points from the previous day's close. The stock had been weak for several days because of anticipation of Western Electric's dividend omission.

Officials of the American Telephone & Telegraph Co. said earnings of the Bell System this year would more than cover the $9 dividend requirements on the capital stocks despite the omission of further Western Electric dividends this year. On the basis of the last previous payment of 75 cents a share, the return on the Western Electric holdings for the third and fourth quarters would have aggregated $8,850,000.

For the first half of 1931 American Telephone & Telegraph Co. income exceeded dividend requirements by $9,227,757. The $8,850,000 is equal to about 47 cents a share on 18,574,181 shares of American Telephone & Telegraph Co. stock outstanding. Earnings in the first half year, which included $1.75 a share, or $10,325,000, revenue from Western Electric holdings, were 39 cents in excess of A. T. & T. Co. dividend requirements.

While A. T. & T. will receive only $10,325,000 on its Western Electric stock holdings this year, compared with $22,865,000 last year, $23,111,000 in 1929, including $1 extra, and $11,063,000 in 1928, the amount is larger than any received from the Western Electric in any year prior to 1928.

A special dividend of $47,938,865 received from the Western Electric in 1927 was a non-recurring dividend representing profits accumulated over a period of years in activities apart from that company's business with Bell System telephone companies. The regular dividend received from the Western Electric in 1927 was $7,375,500, the same as in 1926, and higher than in any preceding year.

The Western Electric Co. has paid off $5,000,000 advances by American Telephone & Telegraph Co. without any financing this year, and has a balance of $25,000,000 notes due to the parent company upon which interest is being paid. This short-term debt to parent company is the lowest since December 31, 1928.

Omission of its dividend will permit the Western Electric to accumulate a further surplus and to wind up the costs of its construction campaign of the last three years at all principal plants. Inventories have been reduced, savings in operating costs have been effected and profitable operations with respect to the Bell System and outside business are reported by Western Electric officials.

New York Telephone Co. Shows Rise in Gross Earnings.

For the first month since January, the New York Telephone Co. reports for July an increase in gross operating revenue compared with the corresponding month of 1930, the figure being $17,456,513, against $17,361,104, as reported to the Interstate Commerce Commission.

In the months from February to June, inclusive, gross revenues were below those for the corresponding months of last year. Net earnings for July were $3,625,258, against $3,250,998, after operating and maintenance expenses, taxes and depreciation. February was the only month so far in 1931 that showed lower net earnings than in the corresponding month of 1930.

As a result, gross operating revenue for the first seven months of 1931 was $124,143,699, against $124,297,360, a decline of $153,661, or 0.12 per cent, while net operating income was $27,480,135, against $25,164,548, a gain of $2,315,587, or 9.2 per cent. The net improvement of $2,469,248 over 1930 is equivalent to 2 per cent of gross revenue.

Telephone Bond & Share Co.'s Report for Six Months.

The Telephone Bond & Share Co. including subsidiaries, for the six months ended June 30, reports a consolidated net income of $483,639 after depreciation, federal taxes and other charges, as against $452,439 in the corresponding period of 1930.

After allowing for dividends on the preferred stock and maximum participation on the $4 participating preferred, the balance was equal to $2.37 a share on 119,558 shares of class A common stock in the first half of 1931, as against $3.07 on 60,871 shares in the same period last year.

The gross revenue for the 1931 period was $3,905,630 as compared with $4,125,066 for the first six months of last year. The increase in net income in the face of a reduction of about 5 per cent in gross revenues was made possible by operating economies and savings in interest charges.

Illinois Cooperative Company Reducing Bonded Indebtedness.

The Geneseo Cooperative Telephone Co., Geneseo, Ill., will reduce its bonded indebtedness by $3,000 the first of November, with the calling of that amount in securities which are not due until 1942. The reduction will be the second of like amount this year. The first payment of $3,000 was made May 1.

By the payment of $6,000 in redeeming the bonds, the company has reduced its bonded indebtedness by almost one-third. The total bond issue was $19,000. After November 1 but $13,000 of this sum still will be listed as a liability of the cooperative company.

Bondholders must be paid a premium of 2 per cent when the bonds are redeemed.

The bonds were authorized in 1928, and were issued in 1929 to obtain money for modernizing the telephone system of the city. Cable was laid and common battery service was instituted.

Continuance of A. T. & T. Co. Dividend for 1932 Indicated.

The ability of the American Telephone & Telegraph Co to pay some $168,000,000 in dividends next year, at the current rate of $9 a share, according to an analysis pub-

lished in the Chicago Tribune, depends to an important degree upon the manner in which the associated companies of the Bell System are able to continue to show increased net earnings despite declining gross revenues.

This year, it is estimated, dividends of about $163,500,000 will be earned by a margin which may be $4,000,000 or more, after omitting anything further on Western Electric holdings this year.

The parent company of the Bell System, it is stated, has never drawn to the fullest extent possible on the surplus earnings of the associated companies. The 21 associated operating companies at the close of 1930 had an aggregate surplus, exclusive of appropriated surplus, of $215,695,000, in which the equity of the American Telephone & Telegraph Co. was $202,792,000. The earnings statements of the 21 companies show an aggregate surplus after dividends of $18,234,000 for 1930, in which the equity of the American Telephone & Telegraph Co. was $16,717,000.

This takes into account only the 21 associated companies, in addition to which American Telephone & Telegraph Co. has equities in foreign operating companies, such as Bell Telephone Co. of Canada, Cuban-American Telephone & Telegraph Co. and various corporations whose operations are affiliated with those of the Bell System for manufacture, research, real estate, etc.

The earned surplus of the Bell System at the close of 1930 was $442,442,228, and the surplus for the year 1930 after dividends on preferred and common stocks of associated companies and American Telephone & Telegraph Co. capital stock was $45,020,763. The system had $64,341,462 cash and bank deposits and $354,774,712 temporary investments, or liquid resources of practically $420,000,000. Accounts receivable of $151,178,536 were alone more than double bills and accounts payable of $74,000,000.

The operating reports made to the Interstate Commerce Commission by 20 of the associated telephone companies for seven months ended July 31 showed declines in gross revenues, but the aggregate net earnings rose 3.44 per cent from $112,841,111 to $116,862,989, as a result of operating economies put into effect.

The report of American Telephone & Telegraph Co. for the first half of 1931 shows that dividends received were $79,214,738, including about $10,325,000 from Western Electric Co. against $72,254,344 in the first half of 1930, including more than $10,000,000 Western Electric dividends.

The American Telephone & Telegraph Co. received $13,993,661 interest in the first half of 1931, against $13,403,109 in the 1930 period, and miscellaneous revenue was $771,030 against $757,78, according to its reports recently given out.

These various factors thus point to the reasonableness of the opinion of company officials that the $9 dividend will be continuously earned and their belief that it will be paid to stockholders if earned.

Latest Telephone News From England

Recent Political Changes in England Resulted in Resignation of Postmaster General Attlee—Impending Appointment of Successor Reopens Public Criticism of Post Office—Greater Expansion of Telephone Usage Advocated—News Items

By TELEPHONY'S Special London Correspondent

The turn of political events, resulting in the temporary establishment of a National government in place of the Labor administration which has been in office, if not in power, since the general election of 1929, has brought about one more change in the kaleidoscopic series of postmasters general to which the British public has had to learn, by oft-repeated experience, to accustom itself.

Major Attlee, in common with all his Labor colleagues holding junior ministerial office in the government, has resigned, and at the moment of writing, his successor has not been appointed. The procedure which demands that a purely political event like a change of government should involve the departure of the managing director of perhaps the biggest commercial concern in the country—this is not an unreasonable description of the office of Postmaster General—is hardly logical or sensible in the view of the man in the street, but there it is.

Major Attlee has had to go, just as he was beginning to make his presence felt and to deal with at least some of the problems which he found waiting for him when he came into office. He will be very much missed in the Post Office, and his resignation will be much regretted, particularly in telephone circles, for he had already shown clear signs of his determination to deal energetically and effectively with the question of increasing telephone growth and telephone usage in this country.

If for nothing else, his short term of office will be memorable for the inauguration of a definite campaign of official publicity for the telephone system, a program which, it is to be hoped, his successor will decide to continue and to intensify, despite the brooding spectre of economy, which just at present looms large over every item of public expenditure.

It was inevitable that the consequent impending appointment of a new Postmaster General, in conjunction with a recommendation in the report of the royal commission on the civil service that a special committee should be appointed to inquire into the whole question of the administration of the Post Office, should have reopened the flood gates of public criticism, always ready to "have another go" at this imperturbable, aloof department.

Cynical critics suggest that it won't make much difference, anyhow, who is appointed, since the Postmaster General is only a nominal head and counts for little against the interests permanently entrenched within the department. Postmasters general, these critics claim, are divided into two classes: (a) Those who hand over control to the permanent officials on the day they assume office; and (b) those who hand over control shortly after that date.

To reinforce this style of captious criticism come more serious contributions from men of the calibre of Harold Cox, widely known as an economist and as a sound commentator on public administration, and A. L. Dakyns, lecturer on public administration at Manchester University.

Mr. Cox supports the arguments voiced recently, although not by any means for the first time, by the London Chamber of Commerce in favor of separating telephone and telegraph services from the Post Office and administering them through a commercially-controlled public trust, which would be given the necessary freedom of action to enable it to wipe out quickly the net loss to the Post Office, and therefore to the state, one combined telephone and telegraph services, amounting in 1929-30 to nearly $1,500,000.

He contends, after quoting the magnificent service and wonderful expansion attained by the American Telephone & Telegraph Co. in the United States, that telephones and telegraphs are essentially commercial services which ought to be conducted on commercial principles, but which cannot be so conducted so long as they are controlled by the Post Office, itself controlled by the Treasury.

Mr. Dakyns also quotes the American example, where, he claims, it is much easier to define a public utility because "there is still the attitude on the other side of the Atlantic that it is a natural law that public undertakings must submit to control and charge reasonable prices." Mr. Dakyns' point is that, regarded as a public utility enterprise it cannot be called a good thing that the Post Office should charge exceptionally high rates to benefit the

exchequer nor that it should be regarded as a private department of the Treasury.

The amount voted for telephone development is paltry in comparison with the amount allowed in America, and he is confident that development of the telephone system and of the telephone habit would increase much more rapidly if Parliament would allow more money. But it must be remembered that Parliament has not a large say in this matter since in practice it is invited only every three years or so to authorize a figure of capital expenditure which is put forward by the Post Office, not without previous consultation with the Treasury, as adequate for its various requirements.

It would seem, therefore, that the initiative lies less with Parliament than with the Post Office; and if the latter's views on telephone capital investment are conditioned by the Treasury's general financial policy, then we come back to the same old vicious circle of Treasury control. However, there may be some hope for the future if Mr. Dakyns' contention is true, that the present trend of things shows that this country is ascending the first rungs of the ladder which leads to trusts under public control.

It may be that the ascent will be hastened by the recent political change which, whatever else it may be destined to accomplish, has certainly not increased the political prestige and influence of a socialist party which persists in regarding any reduction of the functions of the state as an insult to its creed.

Solving Conundrums by Telephone.

Selfridge's, which as London's largest store is beloved of American tourists in this country, puts the telephone to great use every day. The store boasts an information bureau to which the general public can apply by telephone for information on any topic. The bureau has a staff of 11 who answer on an average between 2,000 and 3,000 questions a day, most of them by telephone.

All types of people ring up for information, business men, barristers, journalists, novelists, and, it is whispered, even cabinet ministers. Schoolboys who have forgotten their Latin dictionaries appear to be regular clients.

More Personal Calls.

There has been a largely increased use of the "personal call" system on this side of the Atlantic during recent months. Under this system, the telephone authorities find the person to whom it is desired to speak, or, if the person cannot be found, the subscriber is only charged a small fee.

No fewer than 7,675 British telephone subscribers who rang up the Continent during July used the "personal call" system. This represents an increase of 3,264 or 100 per cent over July of last year, and of 1,092 over June of this year.

A Post Office official commenting on the growth said: "The increase is largely due to growing appreciation of the system by the business world, although we find that the general public are also realizing the advantages of the idea. Time, which in the case of telephone calls means money, is saved, since the full charge does not become operative until the conversation actually begins."

Transatlantic Telephone Calls.

Figures are now available to show the increased business of the transatlantic telephone service; 1,827 transatlantic telephone calls were made during July between Great Britain and the United States. This represents an increase over July, 1930, of 553 calls and is attributed largely to the Hoover moratorium conversations. The average number of calls made every month to the United States is 1,216.

June was a record month for all overseas telephone calls to and from Great Britain. British subscribers made a total of 46,203 calls on all overseas circuits during that month, while incoming telephone call numbered approximately 58,797.

Personal Notes from the Field

R. E. Shotts was elected president of the Standard Public Service Co., Columbus, Ohio, on August 22, succeeding Mr. Shoemaker, who resigned recently. The Standard Public Service Co. operates through subsidiaries, approximately 47,000 stations in Kentucky, Ohio, Indiana, Illinois, Iowa, Missouri, Oklahoma and Texas. In addition, the company owns a number of water works plants.

Mr. Shotts has been a director of the Standard company for several years and has been for many years identified with E. H. Rollins & Sons, Inc., investment bankers. Previously he was engaged in consulting engineering practice in connection with municipal and utility works.

J. E. Albert, vice-president, has been elected to the vacancy on the board created by Mr. Shoemaker's resignation.

M. F. Hearn, of Chambersburg, Pa., former district manager of the United Telephone Co. of Pennsylvania, has been promoted to a similar position with the New Jersey Telephone Co., Lebanon, N. J., recently acquired by the United Telephone & Electric Co., Abilene, Kans.

Entering the telephone business in 1901 as a material clerk and time-keeper for the Keystone Telephone Co. of Philadelphia, Mr. Hearn has advanced steadily to his present position. After eight years with the Keystone company he transferred to the American Union Telephone Co. and was stationed at Indiana, Pa., as wire chief.

A few years later he accepted a position with the Mutual Telephone Co., of Erie, as a special agent. In 1914 he became affiliated with the American Telephone & Telegraph Co. and was stationed at West Chester, Pa. He went to Chambersburg in 1916 as district manager of the Cumberland Valley Telephone Co., a position he held up to his recent promotion to New Jersey.

Edgar S. Bloom, president of the Western Electric Co., completed his 35th year in the Bell System a short time ago; on July 6 to be exact.

Mr. Bloom is a graduate of the engineering department of the University of Pennsylvania where he also took a post-graduate course. He began his long and varied telephone career with the New York Telephone Co. where he served for 12 years in the traffic and engineering departments.

He then became general plant superintendent of the Pacific Telephone & Telegraph Co. He added to his knowledge of plant operation and engineering construction as a member of several associated Bell companies in the central and southwestern states. It was here also that he entered the commercial and executive fields.

He later became chairman of the board of directors of the Indiana Bell and Ohio Bell telephone companies and vice-president of the Illinois Bell Telephone Co. In 1922 he was named vice-president of the American Telephone & Telegraph Co. On August 3, 1926, Mr. Bloom was elected to his present position.

S. K. Herr, former district manager of the Waynesboro, Pa., area of the United Telephone Co. of Pennsylvania, has been named to succeed M. F. Hearn as district manager of the Chambersburg territory. Mr. Hearn was recently transferred to New Jersey in charge of United telephone properties in that state.

Mr. Herr, a native of Lancaster, Pa., has been in the telephone business for the past 25 years. He was first employed by the Bell Telephone Co. of Pa. at Lancaster as a troubleman. For a short time he was connected with the Cumberland Telephone & Telegraph Co. in Tennessee. He returned to Pennsylvania in 1910 and was employed in the cable department of the Bell company at Harrisburg where he remained for several years.

In 1923 he was promoted to plant wire chief at Chambersburg, a position which he held until the territory was purchased by the United Telephone Co. Mr. Herr was transferred to Waynesboro as district manager in October, 1930.

British Columbia 1931 Telephone Cable

Gutta-Percha Insulated Submarine Telephone Cable Laid by British Columbia Telephone Co. Between Mainland and Vancouver Island, Can.—Construction Identical to That of Ocean Cables—Manufacturing Methods

By M. C. Timms,
Siemens Brothers & Co., Ltd., London, England

On March 17 last the British Columbia Telephone Co. laid its fifth submarine cable between the mainland of British Columbia and Vancouver Island, Canada. The cable was manufactured and supplied by Siemens Brothers & Co., Ltd., of London, England.

This cable differs materially from that supplied by the same firm in 1929 and laid between Vancouver and Victoria via Mayne Island. The 1929 28-mile cable was of the paper-insulated lead-cased type and contains 60 conductors each of No. 19 B. & S. wire made up in 15 quads; the armor consisted of 20 galvanized iron wires each .232 inch in diameter; the overall diameter of the cable was 2.10 inches.

The present cable is of the single-core gutta-percha insulated type having a conductor weighing 165 pounds per nautical mile, insulated with 180 pounds of gutta-percha per nautical mile. The core is lapped with a layer of thin brass tape, applied next to the insulation, as a protection for the latter against the inroads of toredos or other submarine borers. The armor consists of 12 galvanized iron wires each 0.165 inch in diameter; the overall diameter of the cable is 1.025 inch. A telescoped view is shown in Fig. 1.

A cable constructed in this way provides the most serviceable form of insulated conductor for under-sea service; it is in fact identical with the long deep water cables which span all the oceans of the world, although brass tape is not applied in really deep water, when danger from borers is non-existent. Such a cable, due to the absence of lead casing, is light compared with its tensile strength. Also, because the insulating material retains its properties indefinitely under water, the cable is not so vulnerable as one whose insulation is dependent on the integrity of a lead envelope.

Repairs to such a cable can be carried out successfully at sea in almost any kind of weather, whereas where a paper-

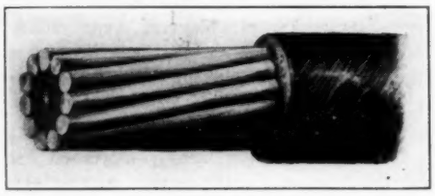


Fig. 1. Telescopic View Showing Cable's Construction.

insulated lead-cased cable is concerned, the success of repair operations is quite dependent on weather conditions.

Many gutta-percha insulated telephone cables are of the multi-core type, enabling three or more conversations to be carried on simultaneously. In order to provide a metallic circuit, two cores are necessary. A two-core cable, however, is comparatively uneconomical; four cores occupy but little more space and provide three channels for traffic.

If the traffic will not warrant more than one channel, the economic solution is a single-core cable operated with an earth return. Such an arrangement gives quite satisfactory results where, as in the present instance, the terminals are well removed from danger of interference from electric power plants.

Gutta-percha is the coagulated latex obtained from the bark of a particular tree which grows wild only in a fairly restricted area of the Malay Archipelago. Being a wild product, raw gutta-percha as received at the cable factory contains a large amount of foreign matter.

The latex proper is a mixture of a hydrocarbon with more or less resin. The factory preparation has for its object the removal of dirt and the adjustment of the hydrocarbon resin ratio to a suitable value. Fig. 2 shows a view of the masticating shop in which the cleaning process is carried out.

After cleaning and de-resinating, the gutta-percha is calendered into sheet and stored under water until required for use. Immediately before application to the conductor a blend is made of the various grades of cleaned sheet in suitable proportions to produce the physical and electrical properties desired. The intimate mixing of the blend takes place in a special masticator under vacuum; by this means a homogenous mixture free from air is obtained.

In order to apply gutta-percha to the conductor it is fed while warm and in a plastic state into an extruding machine which forces it into a die box through which the copper conductor is led. The conductor emerges covered with gutta-percha to the desired thickness. As many as six conductors can be insulated simultaneously in this way. The wire has previously passed through a bath of Chatterton's compound which fills the interstices between the strands and leaves a thin film on the surface of the copper. This film effects the adhesion between the dielectric and the metal.

The insulated conductor known as core is very carefully examined for the discovery of visible defects and then placed

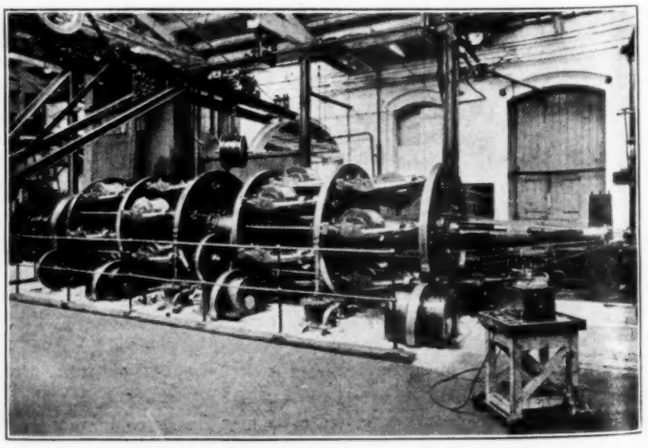


Fig. 2. Masticating Shop in Which Gutta-Percha Is Cleaned—Fig. 3. Cable Sheathing Machines.

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in water. After not less than 14 days' submersion a series of electrical tests is carried out which have for their object the determination of the electrical constants, also the detection of incipient faults.

After passing its tests the core is served with a cushion of wet jute which has been treated with cutch as a preservative. The lengths of served core are jointed together and passed through the sheathing machine which applies the steel wires, also protective coverings of jute or hessian and compound.

The core joints are so made that their diameter is only slightly, if any, in excess of that of the core. The insulation of these joints is proved before they pass through the sheathing machine. Electrical testing of this type of cable is a nearly continuous process from the time the core is manufactured until the cable is finally submerged and taken into service.

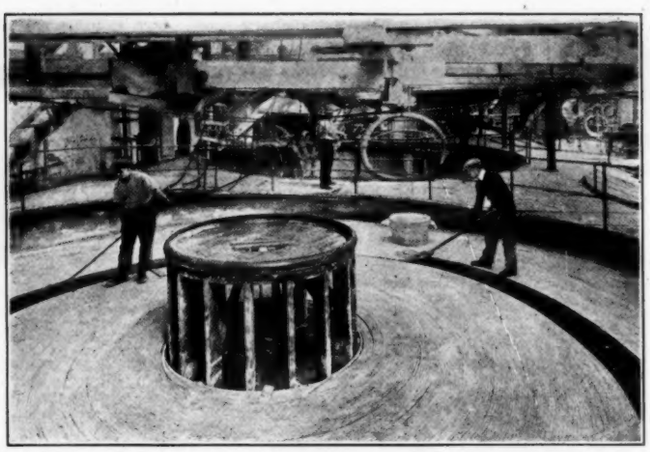


Fig. 4. Tanks in Which Cable is Stored; Coiling of the Cable is from the Outside Toward the Center.

Fig. 3 shows the sheathing machine. The served core is led in at the left-hand end and, passing through the hollow shaft, it emerges at the right-hand to be surrounded by the steel wires which are drawn from spools carried on the revolving cage. The application of the protective coverings immediately follows that of the wires. The latter before application are invariably thoroughly dried and coated with tar. This extra preservative is sometimes supplemented by a lapping of tarred textile tape on each individual wire.

The cable from the sheathing machine is mechanically hauled away at suitable speed and delivered to the tanks, one of which, nearly full, is illustrated in Fig. 4. The cable is coiled around the tanks from outside to center where a skeleton "eye" is located.

On reaching the center of the tank the cable is led direct to the outside wall again. Coiling is always from the periphery toward the center, not the reverse. This arrangement facilitates paying out the cable when it passes from the factory tanks to the ship, or from the ship's tanks to the sea.

Gutta-percha rapidly deteriorates by exposure to the atmosphere and for this reason gutta-percha insulated cables must be stored under water. Hence the cable, whether for storage or transport, is stowed in water-tight tanks which are kept filled with water. This dielectric which rapidly loses its insulating properties in the atmosphere, has the advantage that it retains them indefinitely under water. Hence its almost universal employment in the manufacture of ocean telegraph cables.

What the Commissions Are Doing

Up-to-the-Minute News Regarding the Activities of State and Interstate Commissions, Courts and City Councils in Matters Concerning Telephone Companies—Summary of Commission Orders and Schedule of Telephone Hearings

Sale of South States Utilities Co.'s Properties Authorized in Alabama.

The Alabama Public Utilities Co., a new corporation, has been authorized by the Alabama Public Service Commission to purchase the properties of the South States Utilities Co., owner of a number of small telephone properties in Alabama and Mississippi. It also has other utility interests in Indiana, Georgia and other states, according to the commission's order.

The new corporation is owned, the Alabama commission was advised, by Utilities Shares, Inc., of Delaware, another new company. This latter company is composed of the same men as the First Guardian Co. of Chicago which owns a controlling stock interest in the South States company.

Filing of Suit Blocks Dismissal of Receivership.

On September 5 the Pike County Telephone Co., of Petersburg, Ind., was ordered continued in receivership following a hearing before Judge John Summers on a petition to have the Peoples Loan & Trust Co. discharged since the telephone company was again showing a profit in operation.

The receivership dismissal was blocked by Mrs. Mary McBay, who filed a claim asking $15,000 as judgment against the telephone company. Mrs. McBay set out that she had $15,000 worth of bonds of the company and was induced by Charles Head, manager of the telephone company, to first exchange the bonds for stock in the company and later in the Ohio Valley Utilities Co.

She charges fraud on the part of Mr. Head, claiming he induced her to give up good bonds for stock of an indeterminate value. The court indicated no action on the receivership would be taken until the claim was settled.

Petition Filed to Set Aside Order of Indiana Commission.

With the fall opening of the circuit court in Tipton, Ind., recently, a proceeding was filed by Attorney C. W. Mount on behalf of the Sharpsville Telephone Co., asking the court to declare an order of the Indiana Public Service Commission void and of no effect. The complaint also questions the right of the commission to order defendants, being heard by the commission, to appear in Indianapolis instead of holding a hearing in the county.

This suit is the result of an order issued on August 7 by the Indiana commission and promulgated on August 29 in which the Sharpsville Telephone Co. was directed to discontinue service from its exchange to four former subscrivers of the Windfall Telephone Co.

The subscribers in question had their telephones taken out some time ago when the Commonwealth Telephone Co. raised its rates at Windfall, Ind. Afterwards, they were given service by the Sharpsville company.

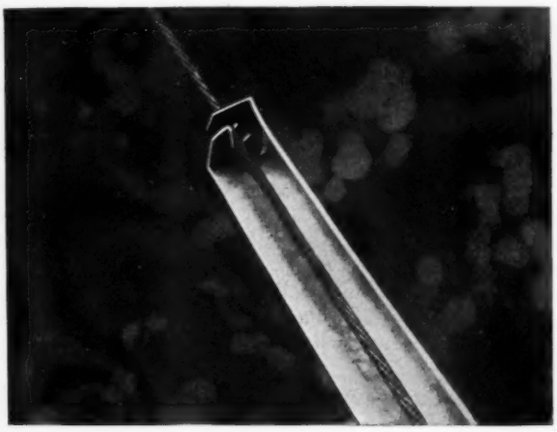
The Windfall company filed a petition asking that the Sharpsville company be refused the right to supply the four subscribers with service and the petition was granted. It is claimed that no representative of the Sharpsville company was present at the hearing which was held in Indianapolis.

Hearings Resumed in Southern Indiana T. & T. Injunction.

Protests against rate increase proposals and conditions of service were heard by Samuel Dowden, special master in chancery in Indianapolis, Ind., on September 21, as hearings in the rate injunction suit of the Southern Indiana Telephone &

All These Features..

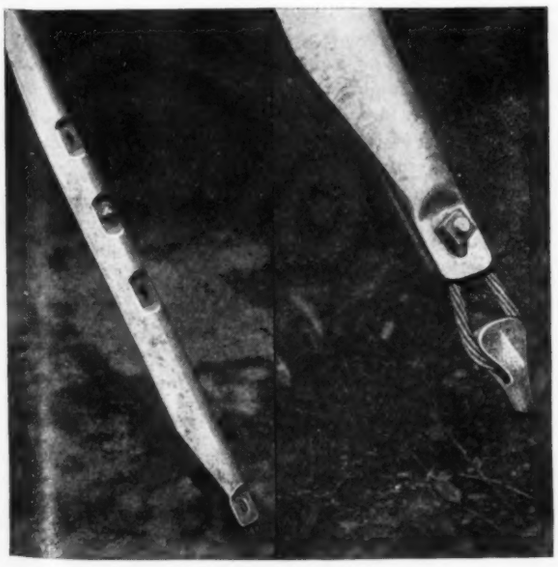
AND MATTHEWS GUY GUARDS COST YOU LESS INSTALLED THAN ANY OTHERS THAT YOU CAN BUY THAT WILL STOP GUY HAZARDS



The above photograph taken from underneath the installation shows the automatic grip at upper end of the Matthews Guy Guard (only place where Guard touches guy). This grip assures a rigid, vibrationless hold on guy strand.

Below Left... shows four holes which provide the necessary flexibility for bolting guards when anchor rods protrude as much as thirty inches from the ground.

Below right... shows the Guard bolted through the lower hole when the anchor protrudes only a few inches from the ground.



All one piece. No hinges, U-Bolts, set-screws, or other parts to lose, forget, damage or vibrate loose.

Can be completely installed in less than 2 minutes. When hit by heavy vehicle cannot be turned around guy from installed position. They cannot be twisted out of position by mischievous persons.

Take up less space on line trucks and in store room because they nest over 70% one within the other. Take third class freight rate for same reason.

Completely protect against bolt and strand ends...

More visibility from any angle . . . No sharp edges.

Complete ventilation prevents collection of snow, ice and moisture; therefore, corrosion is less rapid.

They cannot rattle, hum or whistle when it is windy because they cannot be put on loosely.

They are easily installed on "close-in" guys where linemen would frequently fail to properly attach U-bolts, set-screws, tie-wires, etc., because of the difficulty of getting up to them.

Special Trial Proposition Good Until Oct. 1, 1931

Until October 1, 1931 you can get 25 Matthews Guy Guards freight charges prepaid. If after 30 days' trial you do not think that they are better in every way, you may return them by freight, charges collect, and you will receive a cancellation of our bill.

You want to know if they are better and will save you money. This Trial Proposition puts the burden of proof on Matthews Guy Guard.

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Telegraph Co., Seymour, were resumed in federal court.

Committees and petitions, representing many of the towns served by the company, were heard by the master.

Notice that telephone service would be discontinued in many of the cities and towns if rate increases were granted, was given by Dubois county's representatives, while others were present from Jasper, Huntingburg, Madison and other towns.

George M. Huffsmith, deputy attorney general, appeared on behalf of the state to oppose the company's appeal to the federal court. The company proposes to enjoin the Indiana Public Service Commission from the interfering with the placing in effect of higher rates.

Evidence has been introduced showing that each time rates have been increased since 1925, the number of telephone users has declined. Evidence also was introduced to show that poles in Jasper, bearing inventory numbers of the telephone company, really are the property of the municipal light plant in that city.

Kansas Public Utilities Must Report Holding Company Affiliations.

The Kansas Public Service Commission on September 9 issued an order directing all public utilities operating in Kansas to file reports showing all their financial and contractual relations with holding and affiliated companies.

The reports must be filed by October 1, Attorney Earl Hatcher of the commission stated orally. Mr. Hatcher said that the order will prevent any public utility in the state making payments to holding companies until the commission has investigated the "reasonableness" of the charges.

Michigan Commission to Reduce Costs of Experts' Services.

With the state's three experts off the payroll, the Michigan Public Utilities Commission on September 16 prepared for a conference with Attorney General Paul W. Voorhies relative to the continuance of Harold Goodman of Detroit as assistant attorney general in charge of the federal court litigation with the Michigan Bell Telephone Co.

The commission on September 15 discharged Menfred K. Toeppen, Gerald J. Wagner and C. A. Parker, engaged last January by the former commission to make an audit and appraisal of the company's books and property. They were asked to submit a new proposal covering compensation and expenses. All three may be taken back by the commission provided they submit a satisfactory proposal which will be much reduced under the one under which they have been working, it is understood. According to Robert H. Dunn, commission chairman, however, the opportunity given them to cut their pay does not commit the state to retaining them.

For two days the members of the commission were in conference with the experts, several city attorneys and a committee from the Michigan Municipal League. The discussions related to the agreement under which the experts and the attorneys were working and the progress of the work to sustain the commission's position for lower telephone rates in the state.

The termination of the agreement approved January 22, 1931, was the first step to bring about a new deal as far as experts' costs are concerned; and as some of the members and the Michigan Municipal League are not fully in accord with the theory of Attorney Goodman in the handling of the court work, it was being predicted that he may be dropped.

Chairman Dunn of the commission said the work will be completed, but until the offers of the three experts have been received it will not be known whether they will be retained. The data they have compiled thus far will be turned over to the state.

Representatives of the Michigan Municipal League sat with the commission and concurred in the decision to end the great expense, which presumably would have to be paid ultimately by telephone subscribers. Lack of co-ordination and results, in work done by the experts were charged.

Subscribers Ask for Common Battery Service at Rushville, Neb.

The Northwestern Bell Telephone Co. has been asked by a large number of subscribers at its Rushville, Neb., exchange to change the type of service from magneto to common battery. It has asked the Nebraska State Railway Commission for authority to comply with the request, if this can be done without a hearing.

The company says that as this will involve the construction of a new building and new equipment and an addition to the investment at the exchange it will be necessary to increase rates. It asks that it be authorized to increase rates for individual business stations from $3.50 per month to $4.00; two-party business from $3.00 to $3.25, and individual residence from $2.25 to $2.50.

It is proposed to dispense with the four-party service to residents now being given, and to substitute a two-party service at a rate of $2.00 a month.

Expert Claims Lack of Cooperation in Michigan Bell Case.

The Michigan Bell Telephone Co. was ordered by the Michigan Public Utilities Commission on September 16 to answer charges that information needed in the state's audit and appraisal of the company's properties has been withheld.

A letter was sent to Burch Foraker, president of the telephone company, asking him to advise the commission as to when he can meet it in Lansing. The hearing was expected to be held this week.

The letter stated that M. K. Toeppen, one of the engineers employed by the state, had reported that "the company's lack of cooperation has seriously hindered and delayed progress." Mr. Toeppen alleged the company either refused or failed to make material available. He said the company informed him certain data could not be submitted to him before next April, whereas the commission believes it should be available not later than December.

"This condition we cannot and will not permit to continue," the commission's letter to President Foraker said. "If your company does not desire to hinder and impede us in carrying forward this investigation, it will produce at once the data requested and will advance the date for handing over the material in order that the investigation may be terminated as soon as possible.

"We suggest that you advise us immediately as to the most convenient time next week when you can attend a conference here with Mr. Toeppen and the commission relative to this matter."

The material referred to is understood to be relative to costs and values.

Lower Rates for Ohio Company; 6.5 Per Cent Return.

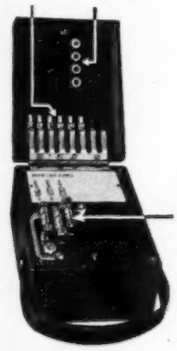
Disapproving the higher rates collected by the Ohio Central Telephone Corp. during the past three years at a number of exchanges in northern Ohio, the Ohio Public Utilities Commission has issued an order establishing a new schedule of reduced rates effective as of August 1, 1928.

The order also directs the company to refund to subscribers the excess rates collected under bond since that time. The total refund ordered to subscribers amounts to approximately $62,359 together with 6 per cent interest for the period from August 1, 1928, to October 1, 1931. The exchanges affected by the new rates and the refund are located at Wooster, Orrville, Millersburg, Rittman, Apple Creek, Fredericksburg, Shreve, Nashville and Holmesville, Ohio.

The Ohio Central Telephone Co. claims a total valuation of its properties of about $1,594,203, on which basis it had been collecting the higher rates. The commission's engineer made an appraisal and the valuation was fixed at $949,593 as of February 1, 1930. The new rates, the commission believes, will permit the company to earn a 6.5 per cent revenue.

"The commission holds," the order stated, "that 6.5 per cent will furnish a revenue sufficient to cover the requirements laid down by the Supreme Court of the United States—holding that a telephone company is engaged in furnishing a service, the price of which may not fluctuate without the consent of the commission; and that the company is not confronted with the possibility of falling prices; and that

This VOLT-AMMETER does not burn out!



Open View Showing Fuse Compartment

Unexpected overloads cannot burn out Weston Model 540 D.C. Volt-ammeter. Independent fuses protect all current and potential ranges—shunts as well as coils of the ammeter. If "blown" the fuses can be replaced in a moment without tools.

Fuse protection—plus a rugged Bakelite protective case, range selecting switch, carrying strap—these are the more important advantages of this modern portable volt-ammeter.

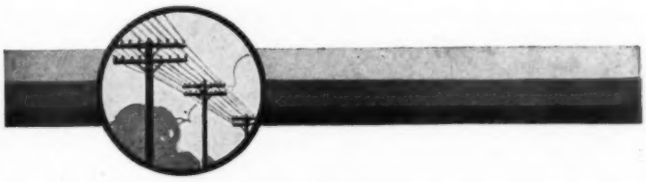
Because of its advanced design, Model 540 is replacing Model 280—an instrument every telephone man knows—for line, battery, and field testing.

Fuse protected Model 540 may be used where danger of overloads resulted in tests being made by less accurate means. At all times it gives continuous, reliable, accurate service.

Weston Model 540—from carrying strap to fuse protection—is the most advanced construction in a miniature portable instrument. It is an example of how Weston always builds extra value into electrical measuring instruments.

For further details, circular TT on request

WESTON
ELECTRICAL INSTRUMENT CORP.
576 FRELINGHUYSEN AVENUE . . . NEWARK, N. J.



WIRES AND CABLES
of Every Description

FOR any type of wire or cable used in Telephone, Telegraph or Power work—get in touch with "Phillips".

This company can supply you with any size, any grade or any type of wire or cable, either bare or insulated to suit your requirements.

Deliveries from this company are unusually prompt, due to the large stocks which are maintained at each of our branches, and their location at strategic points for quick shipment to any place in Canada.

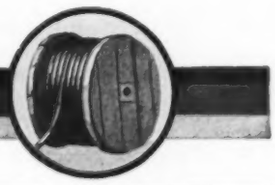
Besides this you have the cooperation of a staff of experts in wire and cable manufacture, trained to value quality above all else—backed by a firm which has been in this one business for over forty years. Write for prices.

We are manufacturers of—

Bare and Insulated Copper Wires—Rubber Insulated Wires—Enameled Wire—Magnet Wire—Power Cables—Switchboard Cables—Paper Insulated Cables—Flexible Cords—Electrolytic Copper Rods, Shapes, etc.

EUGENE F. PHILLIPS ELECTRICAL WORKS, LTD.
ESTABLISHED 1889
MONTREAL, CANADA

FACTORIES — MONTREAL AND BROCKVILLE
BRANCHES—WINNIPEG, TORONTO, REGINA AND VANCOUVER



a rate of income, than that which may be proper for a hazardous undertaking, will be adequate.

"While conceding that the company is confronted with the possibility of declining business and that it may suffer a loss on this account, the commission holds that this decline might well be accentuated by the charging of a higher rate than the public is able to pay.

The commission is not convinced that a lower rate charged the public would produce a loss of income as the charging of that lower rate may be the very cause of sustaining the business of the company."

The company has been ordered to reduce rates at its exchanges as follows: Residence lines in Wooster, 10 cents; in Rittman, 35 cents; and in all other exchanges, 25 cents per month. Residence four-party lines in all exchanges are to be reduced 25 cents per month. Individual business lines in Wooster, 40 cents; in Rittman, 35 cents; and in all other exchanges, 25 cents per month. Four-party business lines in Wooster, 60 cents; in Rittman, 35 cents; and in all other exchanges, 25 cents. Multi-party business and residence lines are to be reduced 10 cents in all exchanges.

Summary of Commission Rulings and Schedule of Hearings.

INTERSTATE COMMERCE COMMISSION.

September 18: New England Telephone & Telegraph Co. applied for authority to acquire all of the capital stock of the Northern Telephone Co., Enosburg Falls, Vt. The company operates three exchanges serving approximately 1,650 stations.

ALABAMA.

September 16: Alabama Public Utilities Co. authorized to purchase the properties of the South States Utilities Co. The Alabama company, a new corporation, is owned by Utilities Shares, Inc., of Delaware.

CALIFORNIA.

September 4: Amasa S. Bryant, owner of the Bridgeport Telephone & Telegraph Co., filed complaint directed against the Southern Sierras Power Co., and asking that the defendant be directed to remove a line which the plaintiff alleges by reason of "inductive interference" is interfering with his telephone system.

September 4: The Interstate Telegraph Co. authorized to install and establish a telephone exchange at Leevining and to provide telephone exchange service in Mono Basin, Mono county.

September 8: In a complaint initiated by the East Los Angeles Civic Organization and the East Side Chamber of Commerce, the commission is asked to order corrected alleged discrimination in telephone rates charged by Southern California Telephone Co. to residents of an area lying north and south of Whittier boulevard with Hillview avenue, western city limits of Montebello, Beverly boulevard and Pacific Electric Railway tracks as its boundaries.

September 9: Santa Barbara Telephone Co. authorized to adjust and change its rate schedules and to increase rates in the Los Alamos and Santa Ynez exchange areas.

September 11: Southwestern Home Telephone Co. granted an extension of seven months dating from March 16, 1931, to establish a telephone exchange to serve the College of Medical Evangelists at Loma Linda, San Bernardino county.

September 14: McFarland Telephone Co., operating in Kern county, applied for permission to make effective rates for extension telephones and extension bells.

INDIANA.

September 18: Approval given application of the Chandler Telephone Co. for permission to increase its rates about 60 per cent.

MICHIGAN.

September 12: Application filed by the Michigan Associated Telephone Co. for authority to purchase property from the Michigan Bell Telephone Co. in Calhoun and Branch counties at a price of approximately $11,500.

The property is located in Athens, Burlington, Tekonsha, Claredon, and Homer townships in Calhoun county and Union township in Branch county.

October 6: Hearing on proposed increase in rates and abandonment of the Lincoln exchange by the Tri-County Telephone Co.

The company proposes to handle the Lincoln exchange business through the Harrisville exchange and also increase the rates for that area.

The proposed rate changes are as follows: Business one-party from $2.34 to $3.25; business two-party from $1.92 to $2.75; business four-party to remain $1.67; residence one-party from $1.92 to $2.25; residence two-party to remain $1.67; residence four-party from $1.42 to $1.75.

MINNESOTA.

September 15: Approval given application of the Revere Telephone Co. for authority to discontinue the operation of its exchange in the village of Revere, Redwood county. The application set forth that the exchange had never been a paying proposition and has only four village subscribers remaining. Service is also supplied by the Tri-State Telephone & Telegraph Co.

September 15: Order issued approving application of the Menagha Telephone Co., of Menahga, asking for authority to establish certain gross monthly telephone rates, and installation and service connection charges as set forth in its petition, effective October 1. The gross rates have discount privileges and were approved as a means of aiding the company in making collections.

September 15: Approval given application of the Danube Telephone Co. for authorization of certain rates and charges in connection with the operation of its telephone exchange at Danube, Renville county.

September 17: Order issued directing the Alaska Township Telephone System, operating in Beltrami county, to withdraw and refrain from furnishing telephone service to any of the inhabitants of Buzzle and Roosevelt townships, Beltrami county, as this territory is served by the Aure Farmers Co-Operative Telephone Association.

MISSOURI.

September 18: Approval given joint application of the North Central Telephone Co. for authority to purchase and the Inland Telephone Company to sell and convey the telephone exchange and system at Irondale.

NEBRASKA.

September 16: Northwestern Bell Telephone Co. asked for authority to substitute common battery service for magneto at its Rushville exchange, and to increase rates.

September 16: Lincoln Telephone & Telegraph Co. asked for approval of a schedule of rates for dial private branch exchange service, where unattended, and to later file a schedule for the same type of service, attended.

NEW YORK.

September 21: Hearing in Albany on petition of A. Leamon, administrator, for authority to transfer the Flint Telephone Lines in Schoharie and Otsego counties to the Otsego & Delaware Telephone Co.

September 21: Hearing in Albany on petition of the Central Bridge Telephone, Inc., for authority to transfer its telephone property to the New York Telephone Co.

September 22: Hearing in New York on motion of the commission as to the discontinuance of telephone service rendered to Shaemas O'Sheel, 157 Clinton street, Brooklyn, by the New York Telephone Co.

NORTH DAKOTA.

September 5: Approval granted application of the Northwestern Bell Telephone Co. for permission to increase rates for service at Harvey.

The increase was asked because of the conversion of the exchange from magneto to common battery. The increases, immediately effective, are 50 cents a month for business telephones and 25 cents a month for residence telephones. There is no increase in rural rates.

A petition, signed by 97 per cent of the subscribers, asked for common battery service for which the subscribers signified their willingness to pay higher rates.

OHIO.

September 16: The Northern Ohio Telephone Co. authorized to file revised rate schedules affecting the company's Galion and Crestline exchanges, effective October first.

September 16: Rate reductions ranging from 10 cents to 60 cents per month were ordered for the Ohio Central Telephone Corp.'s exchanges at Wooster, Millersburg, Holmesville, Nashville, Orrville, Shreve, Fredericksburg, Rittman and Apple Creek.

The new rates set by the commission are to be effective as of August 1, 1928, and as a consequence, the company is required to refund a total of $62,359 to its subscribers. The company has been collecting rates which the commission held to be excessive, under bond since August 1, 1928. The rates authorized, the commission estimated, will provide a return of 6½ per cent.

September 28: Hearing of protests on the Ohio Cities Telephone Co. rate increase applicable to Dover and New Philadelphia.

The controversy arose over the question of valuation of the telephone company's plant in Dover. The company claims a valuation of $956,830 and the commission engineers place the valuation at $807,764.

OKLAHOMA.

October 7: Continued hearing on complaint of citizens of Comanche vs. Southwest Telephone Co. for adjustment of telephone rates.

October 7: Hearing on complaint of Otis Stofer vs. the Southwest Telephone Co. for adjustment of telephone rates at Devol.

October 15: Hearing on complaint of the mayor of Holdenville vs. the Southwestern Bell Telephone Co. for adjustment of telephone rates.

WISCONSIN.

October 9: Rehearing on the Mondovi Telephone Co's application to issue securities. The commission several months ago refused the application on the grounds that contributions by consumers in equipment may not be included in evaluations for rate-making or security-issuing purposes.

Stated in words, the foregoing equation is: To find the distance in feet from the bridge to the open, divide twice the product of the length of the cable times the ratio dial setting by the rheostat setting plus the ratio dial setting.

Example, Location of Opens: The following example illustrates the use of this formula:

One wire of a cable pair (No. 22 gauge) is open 3,515 feet from the main distributing frame. The overall length of the cable is 5,280 feet. Find the distance to the open by the Wheatstone bridge using the method just described.

$$D = \frac{2LA}{R + A}$$

With the connections made as shown in Fig. 12, the following results were obtained:

With the ratio dial set on M-1000, the bridge balanced with the rheostat on 2,004 ohms.

$$D = \frac{2 \times 5{,}280 \times 1{,}000}{2{,}004 + 1{,}000}$$ or 3,515 feet from the main distributing frame to the fault.

Use of External Good Wires.

When a telephone cable goes bad due to the entrance of moisture, it is possible that all pairs may be affected, so that no good wire is available.

When this is the case it is necessary to use an external good wire. It is usually possible to extend a good pair from some nearby cable to the cable terminal at which the good and bad wires are to be strapped together. Either paired drop wire strung on the ground, or, if the poles are dry, a No. 12 iron or copper wire temporarily fastened to the pole is satisfactory for this purpose.

This method requires that care be taken to insure that the insulation resistance to ground of the good wire be well above 100,000 ohms, otherwise a satisfactory result will not be obtained.

Another method of quickly extending a good pair or wire from a nearby feeder cable, is to use the small insulated copper wire which is always available around a telephone plant in old ringer coils. This wire can be hung on the poles with small nails and after the test is completed can be taken down and thrown away.

On long cable runs—a mile or so—in which there is little possibility of obtaining a good wire except by stringing the length of the cable, it may be found desirable to place a single iron or copper wire on a bracket on the top of the pole for use as a good wire during cable trouble. This will be found especially advantageous if the cable is subject to frequent sheath breaks.

It should be noted that when the good and bad wires are not of the same gauge and length, the simple Varley loop formula cannot be used; neither can the Murray formula involving the direct conversion to distance. The three-test Varley or the regular Murray can be used with the same accuracy that would be obtained were the good wire of the same resistance as the bad.

"Telephony's" Engineering Data.
By B. C. Burden.
Index, Maintenance Practices.
Sept. 26, 1931.
No. 3-A, Page 15.

Suggested Method for Attaining Proficiency.

To obtain good results with Wheatstone bridge loops requires that the tester have confidence in this method of testing. This confidence as well as skill in balancing the bridge and making computations, can most easily be acquired by practice measurements.

Inasmuch as most cable plants have multiple terminals in which the same main distributing frame pairs appear, it is feasible to connect artificial faults at intermediate terminals, and strap the good and bad wires at the distant terminal. Measurements can be made using the various methods and the computed results compared with the known distances.

By means of a variable radio resistor, the fault resistance can be adjusted to various values ranging from zero to 100,000 ohms, so as to find out what the limitations in fault location by this method are.

A few practice measurements will convince anyone that the Wheatstone bridge is the ideal method for quickly and accurately locating wet cable, or metallic cable faults.

Every wire chief and plant manager should insist that a bridge be provided as insurance against service interruptions due to wet cable.

Multiple Cables.

In the location of cable faults on multipled cables it frequently happens that the fault will show at a branch point; this indicates that the fault may be either at that point or in the branch cable. When this occurs it is necessary to strap the good and bad wires at the branch cable terminal and remove the strap in the main cable. A new measurement is then taken and actual location determined.

For faults having low resistance, a battery of 4.5 volts is usually sufficient for accurate location; but with higher resistance faults it will be necessary to increase the voltage to around 100 volts. This voltage can readily be obtained from radio B batteries.

When a high voltage is used, care must be taken not to damage the galvanometer during the balancing operation.

The location of cable faults by bridge methods is greatly facilitated by having the linear distance in feet between adjacent terminals marked on the cable map.

Care of the Wheatstone Bridge.

The Wheatstone bridge is not exactly a delicate instrument; it should be treated, however, with reasonable care and not subjected to jar or severe vibration.

The switch arm contacts should be wiped off occasionally and a light film of vaseline applied to prevent excessive wear. The galvanometer movement should always be clamped before the instrument is moved. In using the R arm externally care should be taken to avoid passing a current of more than 100 milliamperes through the coil.

"Telephony's" Engineering Data.
By B. C. Burden.
Index, Maintenance Practices.
Sept. 26, 1931.
No. 4-A, Page 1.

Construction and Theory of a Transmission Test Unit; Volume Indicator Type.

General.

This data sheet describes the theory, constructional details, and applications of a volume indicator type transmission test unit. It was designed for the purpose of measuring the transmission efficiency of transmitters, receivers, induction coils, complete subscriber sets and repeating coils. If made up in portable form it may also be used for determining the transmission equivalents (transmission loss) of telephone circuits.

The principal difference between this unit and the transmission comparison circuit described in the May 9, 1931, data sheets, is the use of a visual volume indicator rather than relying on the human ear for balancing the measuring circuits. The unit will be found a valuable testing arrangement which will pay for itself many times over. It will permit definite determination of the transmission effectiveness of reclaimed instruments and parts, which can then be either put back into the plant, or discarded if not up to standard. This should eliminate the prevalent practice of removing "poor talk" equipment from one station because of a subscriber's complaint, and then later installing this same equipment at another location.

In addition to the transmission improvement that the volume indicator transmission set makes possible, every telephone man will find it an extremely interesting instrument with which to experiment.

The transmission efficiency of telephone equipment is usually rated in terms of 1000-cycle measuring current; that is, an oscillator generating 1000 cycles can be connected to the input of a repeating coil or cord circuit. Then if the output is connected to a resistance equivalent to that of the line in which the equipment ordinarily works, the ratio of the input and output currents will determine the transmission efficiency of the equipment under test.

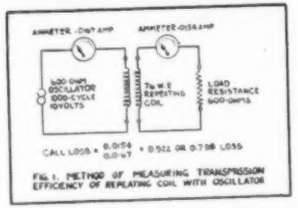


Fig. 1. Method of measuring transmission efficiency of repeating coil with oscillator

By referring to a table showing the relation between current ratio and decibels, the loss of the equipment can be stated in decibels, which is the customary method of expressing transmission losses or gains. Fig. 1 shows how this method is used in measuring the efficiency of a repeating coil (the figures based on an actual measurement of a W. E. 76-A coil).

Another method consists in feeding a 1000-cycle current (usually referred to as "tone") through the equipment to be tested, and then comparing the volume of the tone heard when a receiver is connected to the output of the equipment being tested to that heard over an adjustable loss network.

News Facts Education Assistance

THERE are suggestions for improvements — problems solved —ideas for increasing revenue—all capably and interestingly written in every issue of TELEPHONY.

TELEPHONY covers all branches of the business, presenting information of value regarding management, operation, construction, engineering, commercial, traffic, maintenance, financing, manufacturing, commission orders, rate cases—in fact all phases of the industry.

In the past few years there have been many new developments in operating methods, and organizations, to say nothing of technical developments. All these have been faithfully and accurately described in TELEPHONY. Technical developments are presented in a simple, understandable way.

The up-to-date telephone man reads TELEPHONY because it gives him the important developments in his business promptly—every week.

Every telephone man should receive his personal copy of TELEPHONY.

Telephony

608 S. Dearborn St. Chicago

Telephone Wabash 8604

MANUFACTURERS' LITERATURE

The following is a brief description of recently published bulletins, catalogs, etc. If you are interested in obtaining copies address your request to the manufacturer.

Notices not previously published.

POLES

"Handbook of Practical Information About Cedar Poles and Butt-treating," is the title of a 40-page, illustrated book now available. **Page & Hill Company, Minneapolis, Minn.**

WOOD PRESERVATIVE

An eight-page booklet entitled, "ZMA for Wood Preserving," regarding the different uses of ZMA wood preservative. **Curtin-Howe Corporation, 405 Lexington Ave., New York City, N. Y.**

Notices previously published.

AUTOMATIC SWITCHBOARDS

Bulletin 576, "Installation of Sectional-Type Strowger Switching Equipment," shows strikingly how sectional design has simplified the installation of automatic switching equipment. **Automatic Electric Inc., 1033 W. Van Buren St., Chicago.**

CHESTNUT POLE TIMBER

Eight-page bulletin describing specifications, treating methods and general information regarding chestnut poles. **American Forest Products Co., Inc., 122 East 42nd Street, New York City, N. Y.**

MAGNETO EQUIPMENT

New 72-page general catalog prepared expressly for magneto exchanges. It completely covers all necessary equipment, apparatus, and supplies for magneto plants. **Kellogg Switchboard & Supply Company, 1066 West Adams Street, Chicago, Ill.**

RINGING CONVERTERS

Bulletin No. 150 entitled "Leich Ringing Converters" describes and illustrates converter equipment for producing ringing current; this includes harmonic converters, ringing frequency converters and ringing converters with charger equipment. **Leich Electric Co., Genoa, Ill.**

SALES CAMPAIGNS

Two Small Folders specially designed for extension sales campaigns are now available. They will be furnished complimentary all ready for insertion with your monthly bills—they can be obtained in any quantity required. **American Electric Company, Incorporated, State & 64th Streets, Chicago, Illinois.**

SWITCHBOARDS (P-A-X's)

The Strowger Type 31 P-A-X provides facilities for handling trunk calls at any station, thus eliminating the attendant's cabinet. It is described in an illustrated circular, which has just come off the press. **Automatic Electric Inc., 1033 W. Van Buren St., Chicago, Ill.**

TELEPHONES

Bulletin 1034, a completely revised and enlarged catalog of Strowger Dial Telephones and Telephone Parts, both for central battery and for local battery service. Among the new items included are pay stations, the Strowger Telephone Call Recorder, and the filter coil unit for eliminating radio interference from subscribers' dials. **Automatic Electric Inc., 1033 W. Van Buren St., Chicago, Ill.**

TELEPHONE SUPPLIES

Condensed price list No. 637 applying to catalog No. 91, gives new prices of Kellogg switchboards, telephones, apparatus and supplies. **Kellogg Switchboard & Supply Company, 1066 West Adams Street, Chicago, Ill.**

WOOD POLE SPECIFICATIONS

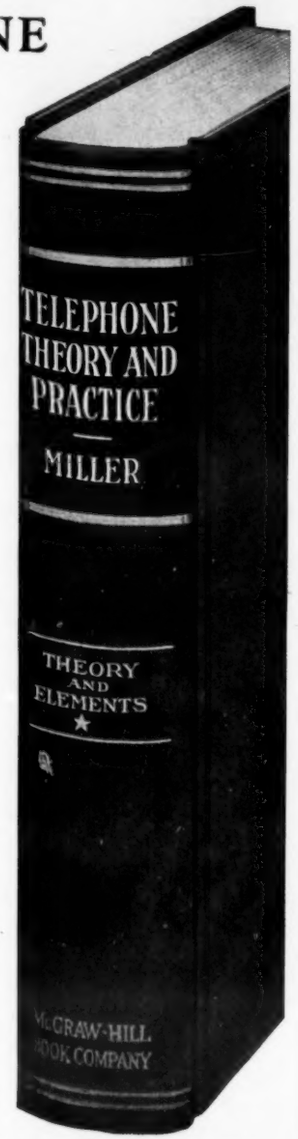
A special folder has been prepared showing the specifications and dimensions for western red cedar, northern white cedar, southern pine and chestnut poles approved by American Standards Association under the sponsorship of the A. S. A. Telephone Group (Bell Telephone System and United States Independent Telephone Association.)

When writing please mention TELEPHONY

TELEPHONE THEORY and PRACTICE

Theory and Elements

by Kempster B. Miller



Fellow, American Institute of Electrical Engineers; Member, Western Society of Engineers; Author of American Telephone Practice, 1904, and Joint Author of Telephony, 1912.

Here is a book that comprehensively covers those introductory and theoretical elements of telephony needed for study and reference by workers in all stages of the profession. It is written by an authority; a man connected with practical telephony for more than thirty-five years. Although the first volume of a three-volume series, this book, Theory and Elements, represents an independent, complete and up-to-date treatment of its subject. A thorough groundwork in the background and principles of telephony is given, which will serve:

1. **The rank-and-file telephone worker as a preparation for an understanding of the practical phases of his job.**
2. **The more advanced telephone worker who is specializing in some particular phase of the industry and who may wish to see more clearly how his job is related to the rest of the business.**
3. **The general technical reader who is interested in the broad phases and general workings of the industry.**
4. **The college student who is interested in underlying theory.**

Throughout, the book is written in understandable language, with mathematical applications reduced to a negligible minimum. We recommend this book of great interest and value to every telephone man. 492 pages, 6x9; 272 illustrations; $5.00.

Telephony Publishing Corporation

Telephone Wabash 8604

608 South Dearborn Street Chicago

With the Manufacturers and Jobbers

C. D. Kinne, General Sales Engineer of Stromberg-Carlson.

Promotion of C. D. Kinne, assistant manager of the Kansas City branch of the Stromberg-Carlson Telephone Mfg. Co., to general sales engineer is announced by

C. D. Kinne, Newly-Appointed Sales Engineer of Stromberg-Carlson Telephone Mfg. Co., Has Had 31 Years of Greatly Varied Telephone Experience.

that company through George A. Scoville, vice-president and sales manager.

In his new position Mr. Kinne will be in contact with operating companies throughout the country and the entire industry will have an opportunity to benefit from his long and varied experience and knowledge of telephony. Mr. Kinne has spent considerable time in the field and has made a host of friends by aiding managers and owners in solving their problems.

In making the appointment, Mr. Scoville said:

"In recognition of Mr. Kinne's ability and the wonderful work he has done as assistant manager of our Kansas City branch, we are appointing him general sales engineer. By doing this, Stromberg-Carlson is giving telephone managers and owners an opportunity to benefit from the experience and knowledge of one of the best telephone men in the country.

Mr. Kinne is familiar with problems confronting managers and his 31 years' experience in telephony will be a great aid to them."

In 1900, when Independent telephony was just beginning to find its place in the industry, Mr. Kinne secured a job as groundman with the American Telephone & Telegraph Co. In a short time he had served his apprenticeship, graduating to the class of lineman.

For three years he worked as lineman for the American Telephone & Telegraph Co., the telegraph department of the Erie Railroad Co. and the Hudson River Telephone Co. The year spent with the Erie Railroad Co. is the only time since 1900 that Mr. Kinne has not been directly connected with either a telephone operating or manufacturing company.

In 1904 the Utica Home Telephone Co., of Utica, N. Y., secured his services as inspector. But after a year the Herkimer County Telephone Co., of Herkimer, N. Y. offered him a greater opportunity in the capacity of superintendent. The success of his work at Herkimer so attracted the attention of the Utica Home Telephone Co. and associated companies that they sought and secured his services in 1907 as plant superintendent.

He remained with the Utica company for five years which were followed by eight years with the New York Telephone Co., where he was district supervisor of maintenance. It was not, however, until 1920 that Mr. Kinne found the work in which he was to excel.

Going to the Stromberg-Carlson Telephone Mfg. Co. as a practical operating telephone man, he secured a position as salesman. So well did he sell himself to his new employers that he was given the entire state of Texas in which to distribute Stromberg-Carlson products.

For six years, he covered this state from north to south and east to west, selling telephones, switchboards and supplies. All the while he was making friends by helping managers and owners with whom he came in contact to solve their problems. The years spent in the operating field served in good stead and made him not only a good fellow and an able salesman, but also a competent advisor.

By the fall of 1926 so many of the companies with which Mr. Kinne had been doing business came into the market for complete new central office equipment or extensive rebuilding of what they were then using, that it became impossible for him to adequately take care of the sales possibilities in Texas and still have time to devote to planning new work.

Accordingly, he was relieved of the responsibility of selling throughout the state and was called into the Kansas City offices as a sales engineer.

In this capacity he was able to keep in

Vitrified Clay Conduit

For Electrical Subways and Other High Tension Lines

Telephone and Other Low Tension Service

Excellent stocks all sizes available for quick shipment.

Our Specialty—QUALITY PRODUCT AND DEPENDABLE SERVICE.

CATALOGUE—Amply illustrated and fully descriptive mailed on request.

Plant located in low freight rate district of the East.

Shawmut Clay Manufacturing Company

Main Office—St. Marys, Pa.

Plant Office—Shawmut, Pa.

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touch with his old friends and also do much constructive work in handling their central office requirements.

In 1928 the Stromberg-Carlson company made Mr. Kinne assistant manager of its Kansas City branch. In this position, he continued to serve the telephone companies of Texas and his influence has been felt throughout the entire territory served from Kansas City.

His new position will allow him to continue his outstanding work in the Kansas City territory and, in addition, he will be able to serve companies in other sections.

Creosoting Company in Texas Issues 16-Page Booklet.

The International Creosoting & Construction Co., whose general office is located at Galveston, Texas, has just issued a 16-page booklet, listing the cities in the United States that use creosoted pine poles in business and residential sections. Among the many hundreds of cities named are New York, Chicago, Detroit, Los Angeles, St. Louis, Baltimore and San Francisco.

Early in the history of the development of the creosoted pine poles some question was raised as to its use on city streets. It was feared that the bleeding of some of the poles might cause trouble if the clothing of pedestrians rubbed against them. Advances in treating-plant machinery and in the science of timber treatment have provided a drier pole than that of years ago, and this is one of the factors that account for the installation of creosoted pine poles in cities everywhere.

Copies of the booklet may be obtained by addressing the International Creosoting & Construction Co., Galveston, Texas.

Obituary.

WILLIAM MONTELLE CARPENTER, president of the Special Book Co., Chicago, and possessor of one of the largest collections of first editions and manuscripts of Kipling, died suddenly on September 21 in his home in Evanston, Ill., of a heart attack. Mr. Carpenter was 65 years old.

Born in Wooster, Ohio, Mr. Carpenter while a child moved with his parents to Downers Grove, Ill., where he was educated in the public schools. He became telephone sales manager for the Western Electric Co. after years of service.

In 1906 Mr. Carpenter organized and became president of the American Crossarm & Conduit Co. of Chicago. He was 22 years with the Western Electric Co. Late in 1928 he disposed of his interests in this company and retired because of ill health. Later he became associated with the Special Book Co.

Mr. Carpenter was a member of the Evanston Historical Society, the Union League Club of Evanston, the Bibliophile Society of Boston, vice-president of the Kipling Society, and member of the First Edition Club, both of London.

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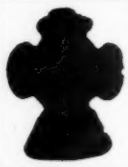
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Answers to Traffic Questions Presented on Page 17.

1. If a call is placed as a person-to-person call and the called party cannot be located, it remains a person-to-person call and is subject to the person-to-person rate, even though the calling party agrees to talk with anyone on the call.
2. There are many benefits derived from good voice work. The following are a few of the most important:
   a. More pleasant inter-relations between the public and telephone employes.
   b. Increased speed in answering.
   c. Fewer recalls.
   d. Fewer wrong numbers.
   e. Spares the operator's voice.
3. If a subscriber requests that his call be held until he asks you to try it, enter "hold for ag" on the back of the ticket.
4. The best method to follow in introducing the new toll operating practice is to use and follow the training programs issued by the Bell company to all toll center offices.
5. The toll center operator is not responsible for quoting the charge on calls originating at one of her tributaries except on calls where the charge is requested by the tributary operator or customer and on calls originating at public stations.

NEW THOUGHTS ON AN OLD PROVERB.

(*Concluded from page* 19.)

thrive unless we help it along by listening to it. Tale-bearing would soon cease and rumors would vanish in thin air if all of us turned a deaf ear to the voice of these two evils.

If we have reason to believe that something we have heard should be investigated, we should seek information through the proper channels. When we want a marcel we don't go to a blacksmith shop to get it. Why should we go to unreliable people for information, when it can be obtained from an authentic source?

Gee! It's time for me to get back to work. Guess I will put my monkey friends up on the shelf where I can see them every time that I come into the restroom. What do you think of them by this time?"

"Well, I never will believe that my ancestors were monkeys!" exclaimed the operator, as Miss Booster arose and started for the operating room; "but I am willing to admit that I have learned a lesson from them today.

"From now on, my motto is going to be: 'Speak no evil, see no evil, hear no evil.'"

District Meeting of Pennsylvania Association Next Month.

A meeting of the eastern district of the Pennsylvania State Telephone & Traffic Association will be held on Wednesday and Thursday, October 14 and 15, at York. The York Telephone & Telegraph Co. will act as host and the meetings will be held in the new telephone building.

"This building is a real inspiration," says President H. E. Bradley of the association. "It clearly demonstrates the success that may be achieved by any company, through a policy of honest fair dealing and untiring conscientious service to the public."

There will be two meetings, Wednesday at 2 o'clock in the afternoon, and Thursday at 9 o'clock in the morning. There will also be meetings for operators.

Western Union and Radio Corporation in Service Merger.

A service merger between the Western Union Telegraph Co. and R. C. A. Communications, Inc., under which the unification of properties or personnel of telegraph, cable and wireless facilities are coordinated, was announced on September 22 from the Western Union offices in New York City.

Although the primary purpose of the combination is to improve the service offered by the two competing systems, according to the announcement, its ultimate result is regarded as likely to be a strengthening of the position of the United States in the field of international communications. The lines of quick communication between this country and 30 other nations will be "greatly strengthened," the announcement said.

Prices in the Metal Markets.

New York, September 21: Copper—Quiet; electrolytic spot and future, 7@7¼c. Iron—Quiet; No. 2 f. o. b. eastern Pennsylvania, $15.50@16.50; Buffalo, $15.00@16.00; Alabama, $11.00@13.00. Tin—Not quoted. Lead—Quiet; spot and New York, 4.40c; East St. Louis, 4.22c. Zinc—Easy; East St. Louis spot and future, 3.70c. Quicksilver—$80.00@84.00.

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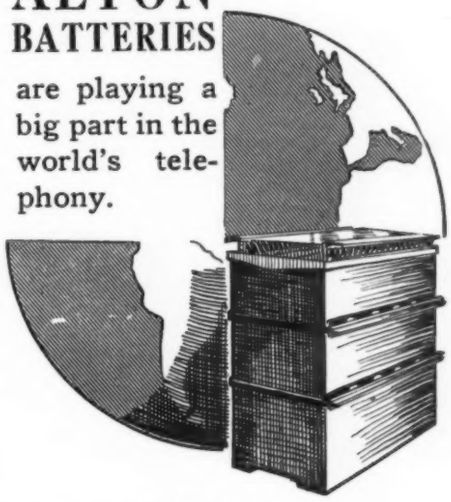

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Chicago Tel. Supply Co. 15-bar 1000-1600 or 2500 ohm compacts @ $7.50—lots of 10 @ each	7.00
Western Elec. No. 317 3-bar 1000 ohm Bdg. compacts with 3-inch gong ringers @ $6.60—lots of 10 @ each	6.30
Western Elec. No. 22 3-bar Bdg. Generator with crank & screws @	1.60
Monarch Local Battery Ind. Coils @	.35
Stromberg-Carlson Local Battery Transmitters with back @	.85
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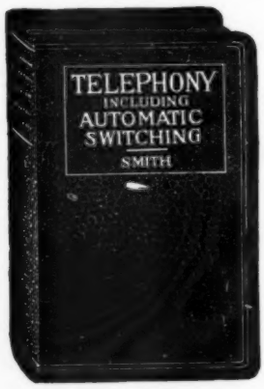
FOR SALE—Tel. exchange, 200 stations, in the heart of the Minn. Lake Region. Reason for selling, want to take over larger plant. Akeley Tel. Co., Akeley, Minn.

FOR SALE — Complete Stromberg-Carlson Program Service equipment, capacity 400 speakers, in service for one year. Will sell all or part very reasonable. TRI-COUNTY TELEPHONE COMPANY, South Haven, Mich.



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